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AND NOW IT'S SULPHUR.

POSTERITY, the rubber portion of it, will view the present period of embargo, restrictions, allocation, shortages, high prices and taxes, with wonder and pity, thankful that such is not their lot. Rubber men of to-day, however, do not indulge in self-pity for an instant, but face every new problem with patriotic optimism. Nevertheless, it did seem as if sulphur, everywhere present in earth and sea, might be relied upon to continue plentiful and cheap. Probable shortage is, however, in sight and the situation confessedly serious.

Sulphur is to-day as necessary as rubber in the production of rubber goods. Generally speaking, dry-heat goods, such as clothing and footwear, contain three per cent; mechanical goods, sundries, etc., six to ten per cent and hard rubber, 20 to 40 per cent of sulphur. If seven per cent were taken for an average, 350,000,000 pounds of crude rubber would call for 24,500,000 pounds of sulphur. Nor should it be forgotten that 300,000,000 pounds of reclaimed rubber call for an additional three per cent or 9,000,000 pounds. Thus, the sulphur needed for this year is 33,500,000 pounds. With the foreign supplies cut off, and with the possibility that munitions will demand most of that now being produced, what is in sight?

There are a few deposits of metallic sulphur in various parts of the United States that might be worked. There is also in the West Indies on the island of St. Lucia a large deposit from which sulphur once came into the United States and there are volcanic deposits in Central and South America. Speaking still of its occurrence in nature, there are the sulphur springs in various parts of the Union and the sulphur wells so often considered a nuisance.

It is probable that the first relief will come through the utilization of waste sulphurous gases in manufacturing plants which the Government is now investigating. Perhaps, too, some cheap and feasible way will develop to save and recover the sulphur gases from devulcanizers and vulcanizers in the rubber industry itself.

In the meantime, while casting about for relief, what about substitutes for sulphur? It is a matter of history that in the early days of rubber manufacture, Charles Hancock cured rubber with the vapors of zinc and copper dissolved in nitric acid; that Newbrough and Fagan used bromine and, later, iodine; and Helm used chlorine. Marcy used powdered selenium and a few months ago Boggs secured good results with the same metal.

What, moreover, of the experiments and patents of the Russian chemist Ostromislensky concerning the substitution of nitro-compounds, peroxides and peracids for sulphur?

All in all, with sulphur eliminated, the trade, although horribly embarrassed, would not be obliterated. Rubber manufacturers, when threatened with lack of supplies, created huge cotton and rubber plantations, thus assuring their own future and incidentally easing the market for all other users. To-day, with characteristic enterprise, two of the big corporations are seeking independent sulphur supplies for their own needs. The chances are, also, that the ability that has turned a shipless, soldierless country into a great maritime power, with a million men in France, will produce sulphur sufficient for all needs and with a bit over for the Huns in the Hereafter.

RUBBER IS RUBBER.

IT has taken manufacturers many years to reach the conclusion that the rubber content of the low-grade sorts is actually rubber. Nature mixed resin in varying amounts with certain rubbers; and as they did not act like Pará, the feeling was that they were not usuable or at best were only substitutes.

When the rubber business was small, Pará grades only were used. Later came Centrals, accepted with suspicion and used with reluctance.

Only a few years ago one well-known company used only Fine Pará and dried every pound twelve months

before using. To-day it uses numerous grades and after one day's drying.

The first African rubber to appear on the American market found none willing to use it. E. S. Converse, then the largest manufacturer of rubber shoes in the world, warned the writer against "African thimbles," affirming that they could not be classed as "good rubber." Later he, together with the rest of the shoe manufacturers, was able to use them extensively. So, too, with rubber reclaimed by the acid process. The conservative were slow to see any value in it and to them, for years, it was not rubber but "shoddy."

When guayule was first produced commercially it encountered the same prejudice. It was a "substitute." It "acted as a solvent" upon better-grade gums. Nevertheless, as it continued to arrive by millions of pounds, it was finally accepted as a real rubber and a very valuable one. Indeed, one progressive house extracted its resin, treated it, and produced pure-gum, transparent goods that could not be distinguished from those made from Fine Pará.

The corollary is that rubber is rubber; that skilful treatment, wise amalgamation, deresination, will make any grades usable. Pará rubber is to-day the unit of excellence, but it is perfectly possible that the machine-grown, treated guayule will ultimately be just as good, perhaps better.

THE DIRTY DOZEN.

THE Department of Justice, according to the daily press, has proof that twelve raincoat manufacturers have not only been guilty of bribery and intimidation but have furnished worthless coats for our boys at the front. If true, they should be put out of business at once. Not only that, but sellers of crude rubber, of fabrics, of machinery, should see to it that they never come back. Known as the Dirty Dozen, their traitorous work should be kept in mind by the big, clean, patriotic rubber trade as a fitting punishment and a warning to others, if such there be.

"NATURAL" RUBBER.

THE War Trade Board, under date of June 3, published very wise rulings concerning gutta jelutong, gutta siak, gutta percha and balata. But in describing these gums as "possessing some of the characteristics of rubber and capable under circumstances of being used as substitutes for natural rubber," it filled at least one editor with wonderment.

Gutta jelutong is rubber; all experts agree upon that point, and the United States courts have so decided. The statement, therefore, that it "possesses some of the characteristics of rubber" is like asserting that rain possesses some of the characteristics of water.

The adjective "natural" has not heretofore been used as descriptive of rubber except to distinguish the natural product from the synthetic product. Nor does it fit in this case, for jelutong could not be classed as a synthetic product, even by the most critical customs appraiser.

Were not the War Board a most dignified and capable body, the temptation would be to exploit other accepted meanings of "natural," but we forbear. The thought in the mind of the user of the word was doubtless high-grade rubber, and had he written that, we would not have written this.

NONE OF THEM RUBBER SUBSTITUTES.

THE uniformly accurate "Boston Record" says:

The War Trade Board in restricting importation of rubber substitutes will allow but 659 tons of gutta percha and 1,400 tons of balata to come in during the coming year, and bans gutta jelutong and gutta siak entirely.

The fact that a material is used to replace another does not in trade parlance always class it as a substitute. For example, Pará rubber is often used instead of gutta percha but it is not called a gutta percha substitute. Balata is used instead of leather but is not listed as a leather substitute.

Rubber substitutes in the long-established trade acceptance are a definite class of materials made usually from oxidized or sulphurized oils. To put any grades of rubber or gutta percha in this class is simply to create confusion.

MEN ON WAR WORK STRIKING FOR A "RAISE" ARE selling their country for a bit of extra money. They are petty Judases, not a whit better than the patron saint of profiteers who sold his Master for thirty pieces of silver. They are the tools of pro-Germans, traitors to liberty, enemies of our boys at the front.

WHEN CARGO SPACE IS SCARCE ON SOUTH AMERICAN rivers, *pelles* of crude rubber are strung together and floated downstream, often hundreds of miles. *Pelles* weighing half a ton have several times been made for exhibition purposes and by native rubber gatherers.

This is an era of big things—why not a thousand-ton *pelle* of rubber with a steel hawser through it and a boat to pull it? Such transportation would save not a part but the whole cargo space.

THE ANNUAL MIDSUMMER OUTING OF THE AMERICAN rubber trade is an historic occasion always observed since its beginnings.

This year it was held in France and the attendance was the largest yet, some 20,000 men being present. There were two days celebrated, July Fourth and July Fourteenth. Airplane flights, target shooting, and excursions into No Man's Land were only a few of the excellent features of the program provided for the entertainment of the rubber men—and the Huns.

Where Hevea Brasiliensis Is King.

By A. Cramer, Manager, Orient Rubber Estates, Limited, Johore.

THE Malay Peninsula is made of rubber, feeds on rubber, and exudes rubber at every pore. One cannot settle there without becoming interested in this marvelous product, whose tenacity holds together a vast region and whose elasticity extends its interests to the ends of the earth. Ceylon, Johore, and the entire Malay Archipelago, have their economic foundation in this comparatively new industry, and until—or unless—some suitable and cheaper substitute be invented or discovered there is little fear of a retrograde movement in its importance.

The Far East would indeed suffer materially if such a substitute should ever be found, for the production of rubber is an industry that supports many millions of people and renders valuable vast areas of land that would otherwise be worth little or nothing.

The suddenness with which the rubber industry grew from comparative obscurity to a domineering height produced its consequential spasms of delirium in all the world's chief centers of production. In the Malay Peninsula speculations took place that out-Nevadaed Nevada. Fortunes were made and lost overnight. Plantations that never existed were bought and sold. Shares of stock not worth the paper they were printed on circulated among all classes. Even the gayety girls in Malabar street, in Singapore, invested their spare rupees in rubber stock.

Reaction soon set in, however, and sane conditions assumed sway. To-day thousands upon thousands of acres under cultivation throughout the Archipelago bear witness to the solid foundation of an industry which supports 75 per cent of the population.

THE MANAGER OF ORIENT RUBBER ESTATES, LIMITED, JOHORE.

Without encroaching upon the domain of ethnography, it may be interesting to study briefly the picturesque conglomeration which makes up the laboring population of the Malay Peninsula. John Chinaman is in the majority and his industry and frugality are everywhere in evidence. Then there are natives of Java, Borneo, New Guinea, Ceylon, Bengal, and a great many other places too numerous to mention. And a Javanese from eastern or southern Java is in no wise the same as a Sudanese from western Java, for, although geographically and ethnographically brethren, they are linguistically far apart. The jabber of the Dajak from Borneo does not resemble the jibber of the Singhalese; and the Sumatran Malay calls his rice by a name different from that used by his peninsula brother.

The Chinaman himself is "various." A "Hylam" Chinaman has difficulty in making himself understood by a "Markow," and a "Kaeh" is seldom on easy speaking terms with a "Tewten."

This heterogeneous population constitutes a labor problem of no mean magnitude. It has, however, been the writer's experience that the Oriental is almost universally underestimated by western people who have had no personal contact with him in an active field of industry. People otherwise sane are often heard to remark that the Oriental's chief characteristics are dishonesty, untruthfulness and cowardice. Such a sweeping accusation may be true of that part of the native urban population which, through contact with Europeans, has been corrupted morally; but the rural population, untouched by Occidental "civilization," almost invariably is largely intelligent, industrious, and physically and morally wholesome.

A NATIVE LABORER OF GREAT VALUE.

A GROUP OF MIXED LABOR.

There is nothing new in this assertion. Native peoples of many lands may have been savage, ignorant, and unmoral prior to the advent of the white man, but only after contact with him did savagery become cunning, ignorance hypocrisy, and unmorality immorality. Examples of native bravery and loyalty are furnished by the conditions in Atjeh in northern Sumatra, where the Dutch for nearly twenty years have been trying, and trying in vain, to subdue the native population; and by the uprising on Lombok, where all Europeans were murdered in one night and where all the natives—men, women, and children—killed themselves as village after village was taken by the Dutch troops. These affairs are not much bruited about, but they give one a different idea of the Oriental from that conventionally entertained.

JAVANESE YOUTH.

Nor can one deny the natives of the Malay Peninsula a certain amount of culture. Their original and highly artistic wood carvings demonstrate an innate sense and love of art; and their laces and braids are admired all over the civilized world.

The average native is frugal and industrious and adheres faithfully to the traditions of his fathers. There is little distinction in dress between rich and poor, and the woman is not a slave of changing fashions. If one meets a sable beauty dressed in silk sarong, open-work stockings, anklets, bracelets, and necklace, and with flowers in her hair, one knows immediately under what category she belongs!

A TYPICAL MALAY WOMAN.

The Chinaman is no longer the pig-tailed, pajama-clad specimen of humanity of former years. Since the revolution he sports a carefully oiled and parted pompadour, dresses in European garb, and whistles the latest ragtime in the trolley cars, thus adding to life a new and awful terror. This, however, is true only of the Chinaman of the better class. His humble brother, the coolie, has merely shorn off his queue in obedience to the republican spirit. This Chinese coolie is the chief labor factor in the rubber industry and deserves a few words for himself.

It is he who clears the jungle, erects fences, attends to holing, lining, and draining, and who finally plants the seed or sets out the stumps.

Whether an estate is to be seeded or planted with stumps depends upon several factors, chiefly upon the season. If the season be right, seeding will be preferred, unless the estate happens to be one surrounded by old jungle, in which case monkeys, squirrels, porcupines, deer, wild hogs, and rats must be taken into consideration. These animals will devour either the seed or the young shoots and destroy many hundred acres of land painfully won from the jungle.

The European planter in India has his work cut out for him. It is no small matter to superintend several hundred men scattered over a working area of thousands of acres. From early morning until sunset he is in the field, except for a couple of hours in the middle of the day when no white man can bear the heat of the sun's perpendicular rays.

The evenings are often spent in work, for the simple reason that the planter has little opportunity to associate with his own kind. The vast area of a rubber plantation means great distances between neighbors, and the planter is very apt to become a moody and taciturn man.

The climate is depressing. There are only two seasons, the wet season and the d——d wet season; and to ward off malaria one has to take from 15 to 20 grains of quinine daily (but, fortunately, the pills may be washed down with whiskey and soda).

One thing which perhaps more than any other contributes to the planter's isolated life on the Malay Peninsula is the scarcity of white women. Few planters are married. They are mostly young men who come out for a few years, to return to Europe in the fulness of time. And in the absence of women there can be no romance. No, life is a dreary realism, a monotony rendered bearable only by the blessed presence of everlasting work.

The coolie is satisfied with his nasi (rice) and ikan kering (dried fish); he saves his money religiously until a "wayang" comes to town. Then he goes the whole hog.

A wayang is an itinerant theater, as a rule having a number of native gayety girls in its train. Such an outfit is drawn by the local gambling farm found near every large plantation; and the combined attraction of wayang, gambling and women is deadly to the heathen soul. But he derives some pleasure from it, and his existence is not so irksome as that of his white master, who is ever dreaming of and longing for a far-away white man's land.

On a moonlight night the Indian landscape presents a very beautiful view. The bungalow is situated on a hill from which the surrounding landscape appears chalky white in the moon's pallid rays, except where, here and there, some object casts a shadow. At intervals a lonely forest giant looms dark against the horizon, and far away the river, like a silvery serpent, disappears in the darkness of the dense jungle. The stillness is rather accentuated by the penetrating song of

A CHINESE TAPPER.

the cicada, the croak of the frog, the flapping of the night raven's wing, and now and then a roar from the jungle announcing that the tiger is foraging. The air is so still and hot that one would scarcely know there was any, were it not for the nauseatingly sweet odor of rubber-tree blossoms with which it is laden.

INTERESTING LETTER FROM A READER.

A HOLLANDER'S VIEWPOINT.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR—Although the reading matter contained in your publication usually has my undivided approval, your May issue contains a little article entitled "Holland's Pitiful Plight," that needs correction, not because of the heading, which is nearer the truth than the other statements, but because of the extremely odd angle from which you view our position. That there is a food shortage in Holland no one will deny, but to say that we expect the United States to stop the gaps caused by exporting to Germany is absurd. Our shortage lies principally in grain for human consumption, which has always been largely supplied by the United States, Argentina and Russia. Since supplies from there have stopped coming, it stands to reason that their absence is being felt very keenly, regardless of the exports to Germany, which have been of a very different nature. When writers or speakers of the Entente remark about our exports to Germany, they always forget to mention that they have also had a share of our products. Great Britain, for instance, has insisted on getting just as much fish as Germany and there have been other arrangements of a similar character. So much for our position in the food question.

Does anybody seriously believe that Holland will of its own accord join the Central Powers? For the last twenty or twenty-five years preceding the present war a growing uneasiness amounting almost to distrust as to Germany's plans has prevailed in the Dutch nation and the first step in this war proved that the fear was only too well-founded. And this feeling of half-fear, half-hate certainly is strong enough to keep Holland from voluntarily joining hands with Germany under any consideration, even of getting food from there, which supposition is one of the absurdities of your article.

The matter of our colonies you approach with a maximum of frankness, very refreshing in these times of mystification. In answer to your question, "With Holland in war against the Allies how long would it before the Allies would take over Java, Sumatra and Dutch Borneo?"—I feel safe in saying, "About as long as it took the Japanese to take over Kiau-Chau." You see we have no illusions on the subject nor do we doubt to whom the rôle would be assigned. They love those jobs.

In conclusion, I heartily endorse your statement that Holland is in a difficult situation. Literally, as well as figuratively, it is between the devil and the deep sea, but if its neutrality can be preserved there is not a single reason why it should not pull through its difficulties.

Yours very truly,

J. POLAK GRODEL.

Amsterdam.

INSURANCE AND PENSIONS FOR GOODRICH EMPLOYES.

THE B. F. Goodrich Co., Akron, Ohio, belongs to that category of employers who believe that it pays to keep their employes happy and contented and to provide, so far as practicable, for their future welfare and that of their families. From the very start it pursues a policy of benevolent interest and due recognition of services, with regard to every one of its force of 22,000 workers. Most of its many forms of welfare work have already been referred to in THE INDIA RUBBER WORLD.

Every person who has been in the employment of the company for three months receives, gratis, a life insurance policy for $500, which is increased $100 each year until it reaches $1,000. Payment of the policy is made to any person the employe may designate.

Should the worker receive injuries while employed, the company supplies medical or surgical aid and pays him one-half of his average weekly wage or salary, if he is unmarried, or two-thirds, if married. He receives the same compensation if injured anywhere during leisure time, provided that the company is notified of the accident or illness, that a qualified physician has been in attendance within three days, and that the sickness or injury causes disability for more than one week.

The same rulings apply to women, who also get disability compensation for eight weeks preceding and thirteen weeks following the birth of a child, provided they have been with the company for twelve months.

The faithful employe who is 70 years old (or a female worker, when she is 65 years of age) receives a pension varying, according to the period of service with the company, from $20 to $100 per month.

On the death of a worker, the Insurance Department investigates the condition of his dependents and if they are not capable of handling money judiciously, the value of the insurance policy is paid out in small instalments. Or, where the beneficiary is not in urgent need of the funds, these are invested in carefully selected first mortgages. But not only the financial condition of the deceased employe's family is looked into; the education of his children, too, is closely followed.

The result of this benevolent interest is that the factory and office forces of the company consist of loyal, efficient and enthusiastic workers.

CHINESE IMPORTS OF RUBBER MANUFACTURES.

According to figures published by the Chinese Imperial Maritime Customs, the imports of india rubber and gutta percha manufactures into China during 1915 and 1916, including boots and shoes, were as follows:

From—	1915. Haikwan Taels.	1916. Haikwan Taels.
Great Britain	57,000	43,000
United States	42,000	63,000
France	32,000	34,000
Russia	90,000	66,000
Japan	287,000	195,000
Other countries	31,000	20,000
Totals	539,000	421,000

In comparing these totals it should be noted that during 1915, the average value of the Haikwan tael was about 62 cents, whereas in 1916 this was around 79 cents.

PRODUCTION OF AMERICAN ASBESTOS INCREASING.

The total quantity of domestic asbestos sold in 1917 was 1,683 short tons, valued at $506,056, an increase of about 13 per cent in both quantity and value over 1916. Most of the domestic asbestos comes from Arizona, where the proportion of crude spinning fiber to that of lower grades is much larger than in Canada, so that the average price of American fiber in 1917 was $301 a ton, whereas the average price of that in Canada was only about $50. Most of the asbestos used in the large asbestos factories of the United States comes from Canada, but the growing appreciation of the high quality American fiber, especially that from Arizona, is a welcome feature of the industry. The opinion that the lower proportion of iron in American asbestos renders it better adapted to use for electrical insulation has been confirmed by the investigations of R. E. Zimmerman, of Pittsburgh, Pennsylvania.

GERMAN BANKS TO CLOSE.

By an order of the Brazilian Government, the operation of German banks throughout the country has been restricted solely to liquidation of their business. This measure will result in the early closing of these institutions.

THE LIBERTY LOAN IN CUBA.

The Compañia Cubana de Zunchos y Goma (Cuban Tire & Rubber Co.), Havana, Cuba, deserves a place in our list of contributors to the Third Liberty Loan. It subscribed $5,000.

War News of the Rubber Industry

American Rubber Trade After the War—Allies to Control Raw Materials After the War—Canadian Export of Rubber Tires Under License—American Masks Effective Against All German Gases—The Work of State Guards in Safeguarding Industry—Metropolitan Industrial Commission Organized—Woman Operatives in Rubber Mills Increase—Ohio Boy Scouts Visit Boston in Motor Trucks—Control Boards to Stop Profiteering—A Rubber Company Supply House—Four Million Trucks Means Sixteen Million Tires—Baedekers and Photographs for Army Use—Window Displays Help War Savings—To Rehabilitate the Wounded for Civil Pursuits—Classification of Productive Occupations by War Department—Filipinos and War Work—Service Notes and Personals—Assistant Patent Examiners Wanted—Letters from the Front

AMERICAN RUBBER TRADE AFTER THE WAR.

WHEN the United States is done with the job of making the world safe for democracy it will have 25,000,000 tons of merchant ships, or the equivalent of England's mercantile marine, which is the largest. America will then have a delivery service for foreign trade equal to that for domestic business, which is the best in the world. The American merchant marine will be utilized after the war to establish American goods all over the world. No longer will it be necessary to depend on the tramp steamers of European nations. Rubber and other essential raw materials will be brought to this country and the manufactured goods shipped abroad chiefly in American bottoms. "Fair play, fair prices and quick deliveries," will be the slogan, states Edward N. Hurley, chairman of the United States Shipping Board. The American shipbuilding program not only meets a world emergency at the present time, but promises to become the most beneficial development of the war as regards future foreign trade. It realizes a long-cherished hope of the American rubber industry.

ALLIES TO CONTROL RAW MATERIALS AFTER THE WAR.

Important decisions have been reached by the Imperial War Conference regarding the best methods of securing the command of essential raw materials produced within the British Empire, with a view to safeguarding the interests of the Empire and the Allies during the period of reconstruction. The decision will form the basis of discussions with the Allies and probably lead to the cooperation desired.

CANADIAN EXPORT OF RUBBER TIRES UNDER LICENSE.

Under an order in council of June 15, 1918, the exportation from Canada of tires for motorcycles and motor vehicles and all other tires containing rubber is prohibited to all destinations except under license issued by the commissioner of customs at the request of the War Trade Board. Under former regulations it was possible to export rubber tires for motorcycles and motor vehicles to the United States and to British countries without a license.

AMERICAN MASKS EFFECTIVE AGAINST ALL GERMAN GASES.

According to the Chemical Warfare Section of the War Department, protection against any of the gases now in use by the Germans is afforded American soldiers by the masks now being worn. Statements that American masks do not protect soldiers from the effects of mustard gas are not warranted.

The masks now worn will protect soldiers as long as they are required to remain in areas drenched by gas. The clothing worn by soldiers will resist the effects of gas for a normal period.

For the protection of the special men whose duty it is to clear trenches of all traces of the gases, special underwear is now being provided. These suits, treated chemically, neutralize poisonous gases. An unguent is also applied to the skin.

Men are being thoroughly trained in gas defense, so that every soldier who enters the zone of fire thoroughly understands the measures of gas defense. Every man is drilled in the adjustment of his gas mask before he is subjected to a gas test, either here or overseas.

SERVICE FLAG OF THE AMERICAN RUBBER TRADE, COMMEMORATING "THE FIRST TWENTY THOUSAND."

THE WORK OF STATE GUARDS IN SAFEGUARDING INDUSTRY.

At a recent meeting of the delegates of the commercial bodies of the State of New York a resolution was unanimously passed heartily commending the New York Guard in its cooperation with and protection of essential industries, and especially in guarding factory property and the thoroughfares of the State. Such a commendable act draws attention to the debt of the rubber trade and every other vital industry to the newly organized military forces of the country for duty at home.

The New York Guard, now numbering about 21,000 officers and enlisted men, has also served the community during this world crisis in many other ways, such as the work of fire prevention covered by the fire-fighting squads now established in all companies of the Guard; by selling $25,000,000 of Liberty Loan Bonds; by drilling draftees so that when they reach the Federal camps their military efficiency will be materially advanced; by serving as a training school for officers and non-commissioned officers for the Federal Army, and in many other ways thus far but partially developed.

Such activities are typical of the important work being done by State Guards and other special constabulary throughout the country, and which should not, in the stress of the times, be overlooked, go unappreciated, or lack the practical support of commercial organizations everywhere.

Rubber manufacturers have encouraged in every way the organization of home and State guards.

METROPOLITAN INDUSTRIAL COMMISSION ORGANIZED.

A successful organization meeting of the Regional Industrial Commission for the New York Industrial Zone was held in the Bankers' Club at the call of the Merchants' Association of New York on July 9. The aim is to effect means whereby business firms may better cooperate with each other and the Government fully and unselfishly in providing supplies which will be needed to win the war. The rubber trade was represented by J. Newton Gunn, president of the United States Tire Co., and Harry Weida, general manager of the India Rubber Co., who were respectively appointed to the Committee on Trade Organization and Procedure and the Committee on Cooperation of Manufacturers.

WOMEN OPERATIVES IN RUBBER MILLS INCREASE.

The call to the colors is taking a large percentage of skilled workmen from rubber factories. The demands of the war call also for an increased output of certain goods. With the steadily decreasing number of men available, more and still more women are being employed. Moreover, much work heretofore done only by men is now being done equally well by women, and in certain instances even better and more quickly.

One company has lost 4,600 men and now has over 3,000 women and girls who turn out 20 per cent of the company's entire product.

In another large establishment women are finishing tires, cutting and splicing fabric for balloons, weighing rubber, molding and trimming rubber heels, operating electrical industrial trucks, making gas masks, operating refining and straining machines in reclaiming rubber, running rubber-washing machines, splicing and trimming tire tread bands, separating rubber sheets that become stuck together in the long voyage from the crude rubber plantations, making tubes, and working as clerks in the various departments.

In the employment department women are doing the hiring of women, and special policewomen have been placed on the factory police staff whose work is chiefly among the women.

Two pictures printed herewith show women at work at the factory of The Fisk Rubber Co., Chicopee Falls, Massachusetts.

"VALVING" INNER TUBES.

Here women are finishing tires—work that is heavy and hard, but which they are doing excellently. Another branch of tire-making formerly done by men but now entirely by women is the valving of inner tubes. While not so strenuous as tire-finishing, it is work which, in normal times, women would not be called upon to do.

These women are wearing "womanalls," a feminized pattern of overalls, with a bloomerized effect, and a half-sleeved vest in

WOMEN FINISHING TIRES.

place of the usual bib and suspenders. These have proved so convenient that they will be adopted universally by women factory workers.

Wherever women are independent of male assistance they are paid the same as men for the same work. But there are certain factory operations which they are unable to perform completely. For instance, women finish tires as well as men, but they are physically unable to handle the heavy metal cores on which the tires are built. So this part of the work is still done by men and the women's rate of pay is determined by the portion of work they actually perform.

OHIO BOY SCOUTS VISIT BOSTON IN MOTOR TRUCKS.

In order to demonstrate to the War Department the value of big motor vehicles in transporting troops rapidly from one section to another, sixty Boy Scouts and executives recently completed a motor trip from Akron, Ohio, to Boston, Massachusetts, and return via Washington, District of Columbia, through the generosity of P. W. Litchfield, vice-president of The Goodyear Tire & Rubber Co., who is also president of the Akron Council of Boy Scouts. The journey was made in Goodyear trucks ordinarily employed in the Akron-Boston express service of the company.

The boys were selected through a competitive examination in which 1,500 took part. They assisted in the Thrift Stamp campaign in Boston and elsewhere along the route. The party was on the road about two weeks and covered some 2,500 miles.

In addition to the trucks in which the lads rode and slept, there was also a truck for baggage and a motor field-kitchen similar to that used by the Army. The kitchen preceded the caravan and stopped at a designated spot. When the other trucks arrived a meal was ready.

The trucks were in motion day and night, the travelers sleeping in them. The kitchen force cleared up after meals, then overtook and passed the caravan again. To look after the boys' physical welfare a physician and a dentist accompanied the party.

Military discipline prevailed and the records being kept will be turned over to the War Department.

CONTROL BOARDS TO STOP PROFITEERING.

A new system of control designed to protect the Government in the procurement of all war materials has been adopted by the War Department. It provides for a review of every contract by boards of control, the centralizing of purchases of each commodity in a single bureau, the standardization of contract clauses, a daily fiscal survey and also for public information on War Department needs.

Operation of this plan is expected to remedy the conditions revealed by the recent arrest of contingency fee agents and the raiding of offices of manufacturers over the country.

A RUBBER COMPANY SUPPLY STORE.

When the rapidly increasing cost of foodstuffs began to be a matter of serious concern to wage-earners, the Hood Rubber Co., Watertown, Massachusetts, decided to establish a store which would enable employes to purchase the most important articles of food at a saving. Certain policies which seemed to promise the greatest saving were decided on. The most important of these were as follows: (1) to make the store self-supporting but not profitable to the company; (2) for the company to furnish

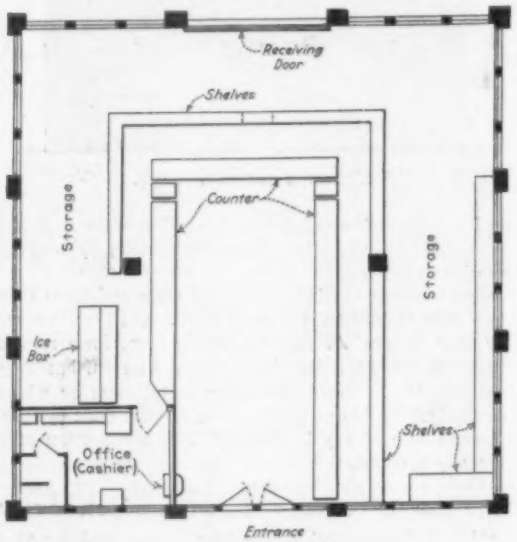


DIAGRAM OF HOOD RUBBER SUPPLY STORE

sufficient capital for the conduct of the store; (3) to eliminate, in buying, the profit of the middleman, by purchasing in large quantities from either producers, packers, brokers or wholesalers; (4) to sell for cash; (5) to eliminate, as far as practicable, the delivery of goods; through the use of motor trucks, however, large bundles to be delivered within a reasonable distance at a nominal cost.

The store occupies a one-story brick building, 48 x 48 feet, centrally located within the factory grounds. The attached diagram shows the arrangements of counters, shelves, storage space, etc. The main storage warehouse is separate and occupies about 3,600 square feet. A complete line of groceries, fruit and produce and such meats as hams, bacon and sausages are carried, but not the more perishable meats.

The store is open twenty hours daily to accommodate all shifts of workers. Arrangement is made whereby orders may be deposited in boxes at the entrances to the factory. These orders are collected and the parcels made ready for delivery at the end of the shift. Although this plan is preferred, employes may, if they prefer, visit the store during working hours, as most of them are engaged on piece work.

The store manager makes all purchases and arranges for delivery to the storehouse. All goods are entered on a receiving book upon their delivery. Invoices are sent to the accounting department and checked against the receiving book. After proper approvals they are paid by the company and charged to the supply store account.

Sales slips are written in duplicate, both copies being handed to the customer, who gives them to the cashier. One copy is retained for the accounting department and the other returned, receipted, to the customer who, before receiving his parcel, shows it to the clerk. This also acts as a pass for the package at the gate.

A stock inventory is taken by a man from the accounting department at the end of each month. This is checked against the book inventory. A statement showing purchases, sales, profit and loss is made monthly.

New price lists are issued frequently, copies of which are posted on the bulletin boards and distributed to customers.

To determine a selling price is rather difficult. At first, a percentage of sales was arbitrarily determined on, which it was thought would pay expenses. This was added to the buying price of the goods. The percentage was nearly correct, but it was found that with the rapidly advancing price of many articles another difficulty arose. Certain goods were selling at a price markedly below other stores. These goods were sold out almost immediately and some were resold by employes. Also the next lot of goods bought made necessary a sharp advance in the selling price. This led to misunderstandings.

To eliminate this profiteering and misunderstanding, it was decided to advance prices gradually, even though the percentage was slightly higher than what had been determined upon. This was offset by other articles on which it was impossible to make the necessary percentage. In other words, the burden of expense was placed on articles which were rapidly advancing. This method required considerable manipulating, but after some experimenting the result desired was accomplished. It is now very rare that any considerable profit or loss shows on the monthly report.

The conclusion is that the venture has been worth while. The fact that the volume of sales has continued to increase is one of the best indications of the success of the store. The average saving to the purchaser is fully 15 per cent. It offers to the man with a large family to support an opportunity to increase the buying value of the dollar. It has never been the intention that this store should in any way influence the wages paid, but it does certainly add to the wages of the man who patronizes it.

FOUR MILLION TRUCKS MEANS SIXTEEN MILLION TIRES.

In an address before the Chamber of Commerce of the United States, F. A. Seiberling, president of The Goodyear Tire & Rubber Co., Akron, Ohio, emphasized the fact that, owing to the remarkable success of the motor truck for freight handling within a radius of fifty to one hundred miles, few, if any more, short-line railroads will be built in this country. Experience has shown that for such short-haul business the motor truck is cheaper, quicker and generally more efficient. Its use will therefore continue to increase after the present war emergency and it behooves the nation to build permanent, continuous, paved highways.

Said Mr. Seiberling in part:

We have today 400,000 motor trucks in service in this country. Those competent to judge, estimate that within five years after the war shall end, this number will exceed 4,000,000, and that nothing can stop this great economic movement except the failure (which would be a national calamity) to build hard-surfaced roads of adequate strength, to carry the greater tonnage at the higher speed required.

We need and should have at once, created and empowered by proper legislation, a strong, independent Federal Highway Department, adequately supplied with money and broad discretionary powers over its expenditure, so organized that it could make a thorough survey of motor truck transportation requirements, and dictate to state, county and township units, upon what roads their money should be expended.

In this connection, the success of rural motor express in many sections of the country to carry farm produce to the market where it is most needed and to bring essential supplies back to the farms is most important. Under the direction of the Highways Transport Committee of the Council of National Defense, the Food Administration, the National Motor Truck Committee of the National Automobile Chamber of Commerce, and backed by the Federal Government, the movement is rapidly taking shape throughout the country and promises to become an important factor in our economic welfare.

BAEDEKERS AND PHOTOGRAPHS FOR ARMY USE.

The following letter has been received by the Editor as the result of his response to a recent general request of the War Department for guide-books and photographs, especially of Germany and the Central Empires:

Dear Sir:

Receipt is acknowledged of the guide-books, photographs and postal cards which you so generously forwarded for the use of the War Department. These books, photographs, and cards will be used to excellent advantage.

Thanking you for the trouble you have taken in sending this illustrative material to us, I am,

Very truly yours,

A. B. COXE,

July 12, 1918. Lieutenant-Colonel, General Staff.

WINDOW DISPLAYS HELP WAR SAVINGS.

Among the numerous ways in which rubber companies are helping to win the war should be mentioned patriotic window displays, such as that at the general offices of the United States Rubber Co., New York City, which consisted of a collection of the best War Savings Stamp posters artistically grouped.

The war savings campaign has recently reached an average of $3,000,000 daily, or about one-tenth of the entire amount now being expended by the nation for war purposes. In other words, the expenditures are 30 cents per capita a day, of which 3 cents are being furnished by the sale of Thrift Stamps.

The National War-Savings Committee, delegated by the Treasury to enlist 100,000,000 investors in the "baby bonds," anticipates soon reaching the $6,000,000 a day rate necessary to place the $2,000,000,000 issue within a year. This will be 6 cents a day per capita.

The sale of these stamps will finance the Government's entire emergency shipping program. The current Treasury receipts from their sale are already averaging the cost of building 12,000 tons of shipping a day.

Every company and every individual in the country can and should do something to support the Government by the purchase of Thrift Stamps and War Savings Stamps, purposely priced so low as to be within the means of every citizen, and which are at the same time a stimulus to thrift and a benefit to individual and nation alike.

October is the time set for launching the Fourth Liberty Loan; but that is two months distant. In the meantime there is opportunity for everybody to buy Thrift and War Savings Stamps.

TO REHABILITATE THE WOUNDED FOR CIVIL PURSUITS.

Congress has delegated to the Federal Board of Vocational Education the task of reeducating and rehabilitating our wounded soldiers and sailors for civil life. The experience of our allies shows that over 80 per cent of permanently disabled men can be reeducated for useful, self-sustaining, wage-earning employment. Many of them, it is expected, will be made into expert artisans and mechanics.

Available statistics show the number to average about 10,000 per million men per annum. In other words, on the present Army and Navy strength, together with auxiliaries, we are certain of almost 30,000 men to be subjects for reeducation this year. With the more sanguinary nature of the fighting in open warfare instead of trench stalemate, the average may run to higher figures.

CLASSIFICATION OF PRODUCTIVE OCCUPATIONS BY WAR DEPARTMENT.

In the regulations announced by Provost Marshal General Crowder affecting all men of draft age it will be of interest to chemists and rubber workers to note the following occupations which are indicated as productive:

Chemical engineer.
Chemist or chemical worker:
- Acids and dyes,
- Analytical,
- Explosives,
- Fireworks,
- General,
- Inorganic,
- Metallurgical,
- Organic,
- Poisonous gases.

Foundryman:
- Core maker,
- Cupola tender (melter),
- Furnace and ladleman,

Molder.
Metal finisher:
- Brass,
- Nickelplater,
- Niterbluer,
- Polisher.

Millwright.
Rubber worker:
- Bootmaker,
- General,
- Tire repairer,
- Vulcanizer.

FILIPINOS AND WAR WORK.

Filipinos are doing a big bit in the war, and the way they have taken hold of the Liberty Loan and Thrift Stamp campaigns is simply splendid. Corn planting contests to save wheat have been welcomed with enthusiasm. Manila and the larger centers manifest all the patriotism of American cities, while many of the smaller places have risen as nobly to the occasion. The part played by Sulu in the Liberty Loan was particularly notable.

WHEAT-SAVING FILIPINOS IN CORN PLANTING CONTEST.

Liberty day found Jolo, the capital, enthusiastic. All the houses were decorated with flags, and Americans, Chinese, Japanese, Mohammedans and Christian Filipinos in gala attire mingled and were one in thought and sentiment. In the morning there was a big parade, headed by the Governor, his staff and mounted escort, and followed by Boy Scouts, school children, Christian Filipinos from different trades, business houses and government bureaus, members of the Sulu Club and Chinese Chamber of Commerce, the Japanese community, and municipal police. The gates were decked with flowers, arches were built, and everywhere could be seen posters calling upon the people to do their bit in making the world safe for democracy.

Speeches were made in Spanish, in Joloano and in English, after which influential Mohammedans and government officials

began the buying of bonds, which was taken up with great enthusiasm by the crowds.

Horse races were held, and a dance was given at the Army and Navy Club, at which refreshments were auctioned off to the highest bidders. Two plates brought $100 each!

For a province of some 120,000 inhabitants, mostly Mohammedans, Liberty day in Jolo was a huge success, considering that barely one day was allowed to notify the people scattered over some two hundred-odd islands where transportation is difficult. It speaks creditably for the Mohammedans, heretofore held incapable of anything except outlawry and piracy, that Liberty bond sales amounted to $18,000 and Red Cross collections $1,014.

The Mohammedans are eager to have their share in the Philippine militia, and look forward to the day when they can serve America's cause.

SERVICE NOTES AND PERSONALS.

Charles A. Coffin, former Lynn shoe manufacturer, has been presented with the cross of an officer of the Legion of Honor of France, for his leadership in Franco-American relief work. As the Lynn story goes, Mr. Coffin and a few other Lynn manufacturers invested some money in an electric motor, invented by a Philadelphia school teacher. The business of making the motors began to increase, until it needed a manager, and Mr. Coffin, upon request of his associates, agreed to give a little time from his shoe business each day to the managing of the motor business, until another manager could be found. But that other manager never was found. Mr. Coffin continued as the manager until he became president of the General Electric Co. and a captain of American industry.

Lieutenant Godfrey L. Cabot, U. S. N. R. F. Flying Corps, who is doing regular patrol duty over Massachusetts bay, is also making experimental flights to demonstrate new aviation principles. On July 4 he flew over Newburyport and Lynn, Massachusetts, droping flags, etc.; Lieutenant Cabot is also president of the Aero Club of New England.

Courtesy of the "Boston American."

LIEUTENANT GODFREY L. CABOT.

The Girls' War Relief Club, an organization of employes of the Hood Rubber Co., Watertown, Massachusetts, has adopted ten French children and will support them in France in their own homes through The Fatherless Children of France, which was organized in October, 1915, in thirty-six large cities of the United States. It costs only $36.50 in United States currency to keep a child one year in its mother's home, as the French Government also allows the equivalent of 10 cents a day for each child.

R. W. Earle, who has been associated with the firm of Earle Brothers, crude rubber brokers, New York City, since 1904, is now a second lieutenant in the Field Artillery, Officers' Training Camp, at Fortress Monroe, Virginia.

Seaman Thomas Lynch, of the original staff of Earle Brothers, is with the Naval Reserve at Pelham Bay, New York.

P. B. Findley, technical editor in the department of publicity of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has resigned to enter the training school at the University of Pittsburgh, where he will take a special course in radio work with the Signal Corps. Mr. Findley was formerly editor of the "Electrical Age."

The Marathon Tire and Rubber Co., Cuyahoga Falls, Ohio, is contributing its quota to the winning of the war. Raymond D. Jenks, its secretary, has enlisted in the Gas Defense service and reported for duty at Washington, District of Columbia; Russell Farley, its purchasing agent, has enlisted in the Ordnance Department and is at Rock Island Arsenal, Rock Island, Illinois; and Floyd R. Biggs, its factory representative at Kansas City, has enlisted in the infantry at Jefferson City, Missouri.

Charles H. Goss, manager of the Bergougnan Tire Corp., 49 West 64th street, New York City, has entered the Army and is stationed at Camp Joseph E. Johnson, Jacksonville, Florida.

GEORGE L. PETERS.

George L. Peters, president of Peters Manufacturing Co., New York City, manufacturer of shoe fabrics and adhesive backing cloths, has enlisted as a private in the Chemical Warfare Section of the government service. Mr. Peters was graduated from Columbia University School of Mines in 1911 and ever since then had been connected with the Peters company.

H. G. MacEachen, formerly western division advertising manager for the Firestone Tire & Rubber Co., Akron, Ohio, has entered the Veterinary Department of the United States Army.

Captain E. E. Buckleton recently made two stirring addresses to the employes of L. C. Chase & Co., Watertown, Massachusetts. To the 15,000 women operatives of the company he told what women are doing for the war in England.

The following members of the staff of Fred. Stern & Co., importers of crude rubber, 227 Broadway, New York, have demonstrated their willingness to serve in the cause of the Allies: Lieutenant Eric Pam, who served in the trenches with "The Queen's" (Royal West Surrey) Regiment and was severely wounded and subsequently discharged from the Army, has returned to his office duties; Charles E. Humphreys, Jr., and Henry J. Killackey have enlisted in the United States Naval Reserves and Sidney J. Pike, Jr., is a member of the 22nd Engineers, New York State Guard.

LIEUTENANT ERIC PAM.

Arthur W. Lawrence has resigned from the position of Procurement Chief, Shoe, Leather and Rubber Goods Division, Army Quartermaster's Department. Mr. Lawrence was formerly assistant manager of shoe sales for the United States Rubber Co., New York City, and will return to that company.

William C. Potter, formerly president of the International Rubber Co., and now a director of the Guaranty Trust Co. of New York, has been nominated by President Wilson to be a member of the Aircraft Board. Mr. Potter is essentially a production man. He started life as a mining engineer, and after many years in that work became identified with the manufacture of automobiles as a director in two well-known companies.

ASSISTANT PATENT EXAMINERS WANTED.

Technically trained men not subject to the draft for military service, and also women who have had a scientific education, particularly in higher mathematics, chemistry, physics, and French or German, are needed for the examining corps of the Patent Office. Engineering or teaching experience in addition to the above is valued. The entrance salary is $1,500. Examinations will be held August 21 and 22. Details may be had upon application to the Civil Service Commission, Washington, District of Columbia.

A War Savings Stamp in the hand is worth two in the booth.

LETTERS FROM THE FRONT

ONE FROM THE Y. M. C. A.

The following from one who gave up a brilliant career to work for American soldiers through the Young Men's Christian Association has just the right ring:

SOMEWHERE IN FRANCE.

DEAR ———:

My! but the khaki sweaters are life-savers. I hope every American solider has one. I have not parted company with mine very long at a time since I came over.

The French soldier thinks the American woman a model of thoughtfulness and I agree with him. The comfort kit you made for me is a source of wonder to the Frenchman. When I tell them my wife made it, they smile and say, "Ah, Madame must be clever."

I was amused at the attitude of the Frenchmen during a recent bomb raid. They would watch it for a while with a bored shrug of their shoulders, with a "what in h—l do I care" sort of motion, and go on with their work. I presume one can get used to almost anything.

You asked about the Y. M. C. A. huts. Well, if you think them a place of luxury, just think again, for they are well named huts, except, of course, in the larger cities; then they are called hotels. Sometimes there is a foot of mud on the floor, only there "hain't" no floor. There is some advantage in being able to take up your house and put it on dry ground. Things are improving, and after awhile it will be made comfortable, but it takes time.

The accommodations in the towns are better, for it is there that the problem is greatest, as each week a percentage of soldiers "off duty," of course, go to the nearest town for recreation. The Y. M. C. A. hotels in Paris are fine. They are always filled to overflowing with officers and men. Amusements in the way of sightseeing trips, movies and concerts, etc., are given them and appreciated by the men. In the huts afield, you get in closer touch with the soldiers and surely feel that it is all worth while when the men begin to know you and call you by your name, look to you to boost them over the hard places, or help chase away that sick feeling of "loneliness in a crowd"! They hail you on the road (often, I think, just to get a cheery word or joke in return). All that is what makes you have heart to go on and be the "big brother." They seem to mean so much and have temptations crowd thick and fast around them. The job put up to the Y. M. C. A. and like organizations is a colossal one—the greatest that has ever confronted the morale of the world, for the world will be made up of the men who come back, and it is up to us and people at home back of us to see that they come back fit to be the fathers of another generation. If I can only help a bit to show them that, although this war may last several years, these years are only an exacting episode in life!

I am seeing thousands of French soldiers daily, and it is an experience worth crossing the ocean to see; so cheerful, capable, so seasoned to hardship and sure of victory.

The American soldiers are quick to catch on and are learning every day, taking short methods, too. I do not know whether it will become necessary for them to order larger-sized hats or not, but one could not blame them if their heads are a little swelled, so open and flattering is the admiration of the French soldier for his friend, the United States Sammy. Whatever this war does, one thing is sure, the friendship of France for America will be everlasting.

Yours for service,

———.

FIRST EXPERIENCES OF AN AMERICAN HOSPITAL UNIT.

An interesting letter, received by F. W. Jones, waterproof clothing sales manager of The B. F. Goodrich Rubber Co., Akron, Ohio, from his former assistant Clifford C. Goes, who is with an American hospital unit in France.

SOMEWHERE IN FRANCE.

DEAR MR. JONES:

From the above heading you will immediately notice that Unit —— has arrived safely in France—at its destination, and that it has been absorbed by Base Hospital No. ——, a fine bunch of officers and men who come not so far from our old office at The B. F. G. Co. What the final assignment or status of each one of us will now be, having been absorbed by a larger unit, time alone will tell.

CLIFFORD C. GOES.

In England we were near enough to London to hear and see faintly the barrage fire and the anti-aircraft lights searching the sky for planes during a Hun air raid. In France we were actually in one raid—saw and heard close by and overhead, the barrage fire, saw German planes fall, and had bombs dropped near our train which had been stopped at the edge of the raided city. Some said the bombs were dropped at our train, as all our lights were not out. They soon were put out, however, and we saw a bomb explode fifty yards from us. It shook us up some and broke windows in our train. Another tore up the track we had just passed over, three hundred yards to the rear. We could hear the machines over our heads, I was up on the roof of the car with some others watching the battle. It was a wonderful experience—exciting, and *close* enough.

Our trip across the Atlantic was great—on a wonderful floating palace, now converted into a transport, one of the best afloat. We had some exciting experiences with German U-boats—several reported near us, but we, the troops, were only conscious of the presence of three —— (censored), thanks to the good aim of our gunners on the American destroyers who were there with us. No war trip would be complete without exciting experiences, and with our U-boat tilts and air raid it only remains to visit the trenches to have seen the three points of greatest activity in this war.

After looking this war game over at close range, I sometimes wonder if I did not make a mistake in not going to camp and getting a commission, and then when I think that during the whole war I would probably have been stationed in the United States chasing rubber and other supplies, I am glad I am here with my old gang from college.

Cordially,

TIP.

Factice or Rubber Substitute.[1]

By André Dubosc.

INSTEAD of the stoneware pan or jar for the preparation of white factices, an improved apparatus may be substituted, which eliminates most of the inconveniences previously mentioned and also permits the recovery of much of the volatile diluents.

This apparatus consists of an enameled cast-iron kettle with a capacity of 100 to 130 gallons twice as high as it is wide. Two-thirds of the height is double-jacketed for the purpose of water-cooling or steam-heating the apparatus at will. The kettle is surmounted by a lead-lined sheet-iron dome, held in place by a quick-acting fastening. This dome is provided with the following:

(1) A stuffing box permitting the passage of the shaft of an agitator geared to turn 20 revolutions a minute. The shaft of the agitator is furnished with several paddles to effect intimate mixture of the contents of the kettle.

(2) A discharge pipe eight inches in diameter, which permits escape of the gases and vapors produced. This pipe is connected by a quick-detachable joint to a lead worm placed in a tank of wood or iron filled with water. This worm acts as a condensor for the diluents escaping as vapor from the heater and connects at the lower end with a closed vessel receiving the condensed diluents under a body of water. This receiver is of lead-lined sheet iron, with vent pipe about two inches in diameter for the escape of hydrochloric and sulphurous acid gas. These gases may be neutralized by passing them into lime or soda solution, or they may be discharged directly into the atmosphere through a tall brick or earthenware chimney.

(3) A thermometer sufficiently long to dip into the liquids in reaction, and so placed as not to hinder the operation of agitation. Both agitator and thermometer tube are coated with enamel or lead for protection against the acid vapors.

(4) An easily-closed opening from ten to twelve inches in diameter for the gradual introduction of chloride of sulphur into the oil by means of a funnel with a glass cock.

The apparatus is operated as follows: from 40 to 50 gallons of oil are placed in the enameled kettle. Diluents are then added (if these are used) and finally calcium carbonate, if a very spongy factice is desired, and the agitator started.

When the mixture is perfect, without stopping the agitator, chloride of sulphur is allowed to drop into the mass by means of the funnel and stop-cock. The mass soon begins to get warm and the circulation of water is started so that the heat may not exceed 70 degrees C. The action of the chloride of sulphur soon causes the mass to thicken; gases and vapors of diluents are given off and enter the worm.

If the temperature rises too rapidly or exceeds 70 degrees C., the introduction of the chloride of sulphur is discontinued until the heat is lowered, when the addition is cautiously completed. With crude oils without diluent, the reaction of the chloride of sulphur on the fatty material is very lively and, if too rapid, the heat developed may cause partial carbonization of the oil. This risk is very great in the case of castor oil, which requires only a few minutes for its transformation. The introduction of chloride of sulphur must be made very slowly indeed and with great care.

During the reaction, especially at the beginning, the mass froths abundantly and often doubles in volume. It then becomes viscous, next sticky like glue, and finally turns into an elastic and solid mass. The thermic reaction attains its maximum at this moment, and during this period it is necessary to control carefully the cooling, so that the temperature may not exceed the allowable maximum.

The agitator must be heavily constructed so that it may break up the semi-solid mass that forms. As soon as the charge is solid, the discharge piping and dome are dismounted and the solid product taken out with wood or iron forks, and placed on a flat board surface to cool. To neutralize the factice it may now be dusted with a little powdered lime or magnesia.

As soon as the mass is somewhat cool, the largest lumps are broken by hand to permit the escape of any confined gases. It is then reduced either with a chopper or in a ball mill to a white or light-colored granular condition, very much like bread crumbs. Sometimes the factice is removed from the enameled heater direct into a vessel containing a five per cent solution of sodium carbonate, which insures neutralization. It is then dried on screens over quicklime or in a well-ventilated oven, the temperature of which does not exceed 40 degrees C., for at a higher heat factices have a tendency to turn yellow.

If the product is a little yellow, the color may be improved by immersion in a dilute solution of aniline blue or violet, or in water in which a little ultramarine blue is suspended. When the factice is dry it is immediately packed in cases or barrels lined with paraffined paper and hermetically sealed, for both humidity and light tend to decompose it.

MANUFACTURE OF BROWN FACTICES.

The analogy between the vulcanization of rubber with chloride of sulphur and the formation of factices by the action of the same substance on oil, caused the belief that since sulphur alone determined the vulcanization of rubber, it must also accomplish the transformation of these fatty matters into factices.

In the last reaction, a brown or black material is actually produced which, as far as its exterior is concerned, greatly resembles rubber and which, by its relatively slow formation, eliminates accidents of sudden reaction like those resulting in the formation of white factices. The process of the manufacture of brown factices is as follows:

The oil, previously heated to a temperature of 100 degrees C., is thoroughly mixed with 15 or 20 per cent of flour of sulphur, according to the degree of hardness desired in the product. It is then gradually heated to a temperature of 160 to 170 degrees C. The material rapidly becomes brown and when the mixture has become as hot as desired it is left to itself, but the temperature is not allowed to fall below 150 degrees C. The dark-brown, almost black, color and the increased consistency of the mass, show that vulcanization has been completed. The mass is then poured onto smooth, cold surfaces, where it congeals and later is removed in blocks. In this form of brown blocks, elastic to the touch, but without cohesion or strength, sulphur factices appear on the market.

Brown factices easily dissolve in alcoholic soda, and the soap thus produced when treated with an acid, gives off considerable quantities of sulphureted hydrogen. Isolated fatty acids, as in the case of white factices, firmly retain their sulphur, with which they seem bound in indivisible combination. Nevertheless, the proportion contained is very little less than that of the factices from which they have been derived by alcoholic-soda-saponification and after-treatment with a mineral acid.

If, theoretically, the manufacture of brown factices by the action of sulphur and heat on oils seems very simple, in practice certain difficulties are met with, which demand many minute precautions if the result is to be successful.

At 100 degrees C. sulphur dissolves in oils, but in rather small proportion—10 per cent approximately—and it does not combine at all. Although the solution seems clear, a drop placed on a

[1]Continued from THE INDIA RUBBER WORLD, July 1, 1918, page 596.

glass plate, on cooling shows an abundant deposit of crystallized sulphur. The temperature must be brought to 130 degrees C. before combination sets in. Also, at this temperature a very slight quantity of hydrosulphuric acid is evolved.

Actual chemical reaction does not take place under 150 degrees C., when the oil becomes red-brown and froths slightly, while a sample run onto a cold surface no longer shows deposits of crystallized sulphur.

The viscosity of the oil remains low and although to a certain extent the factice may be considered formed, it does not solidify when cooled. It is probable that it is then in the first stage of reaction, that of the reaction of substitution between sulphur and oil. This reaction is accompanied by the generation of a fairly large quantity of hydrosulphuric acid and of acroleine, detectable on lead acetate paper or on paper impregnated with rosaniline bisulphite.

If the temperature is maintained at 150 degrees C. long enough, six to seven hours, polymerization of the sulphureted oil tends to take place, which corresponds to the second phase of manufacture, but the material still remains soft and slightly oily when cold. If the temperature is raised to 160 to 170 degrees C., the second stage of manufacture is attained much more rapidly, especially if there is a small excess of sulphur which then acts as a catalyzer.

When the product has assumed a suitable consistency—which may be ascertained by the appearance and resistance to the touch of a drop run onto a sheet of glass, heating is stopped. The temperature is very slowly lowered to 150 degrees C. and the viscous paste which the factice now forms is poured into metal molds approximately fifteen and one-half inches square by four inches deep. These molds are provided with two handles fitted with wood so as to be easily handled. Before pouring the factice into them, they are coated with talc, silicate of soda, or oil, which prevents the material from adhering to the metal and permits easy removal from the molds when cool. This cooling is effected by placing the molds on shelves exposed to the air.

Sometimes, instead of adding the sulphur directly to the oil, it is separately melted and added when the oil is at 150 degrees C. This process shortens the transformation period somewhat, but the addition of warm sulphur causes sudden and abundant foaming. For this method, roll sulphur instead of powdered may be used. If an absolutely dry factice is required, the given preparations of sulphur must be increased by about ten per cent.

In order to reduce the density of brown factice, a mixture of various oils is often used and such ingredients as waxes or paraffins are added to the mixture. Lately, there has been an attempt to substitute the much cheaper naphthalene for paraffin. This product is added last, when the sulphureted oils brought to 170 degrees C., begin to froth freely. The factice is poured out as soon as the naphthalene is dissolved. Factices containing such ingredients are easily recognized by their peculiar odor. Varying proportions of asphalt, Emarex, resin oil and tar have also been used in this way; the best of these ingredients is asphalt.

Mixed factices, obtained by the double action of sulphur and chloride of sulphur on the oils, are often employed. These factices are brown and can be run into blocks; they are more rapidly made than ordinary brown factice. The series of apparatus required to make brown factices may be divided into two classes: (1) apparatus heated by direct firing; (2) double-jacketed apparatus heated by steam.

The first method is not much used at present on account of the fire risk. It comprises a cast-iron or sheet-iron pot, or boiler, holding 100 to 130 gallons, large in diameter and at least three times the diameter in height. The upper part of this boiler is provided with a large open conduit, or overflow, leading to a smaller receiving vessel. In case of sudden foaming this conduit prevents any overflow from reaching the fire and setting the mass in flames.

On this boiler can be adjusted, by means of a bayonet joint, a border of light sheet iron provided with handles and having a height equal to the depth of the boiler. If the conduit cannot hold the overflow of oil caused by sudden frothing, this border is adjusted and permits the foam to rise freely without the risk of flowing into the fire.

Above the boiler a counterweighted, movable hood is suspended by chains over two pulleys, and communicates with chimney exhaust of good drawing capacity. The hood is lowered to within a short distance above the boiler to permit rapid removal of the gases and vapors generated during the heating of the oil. In general, the mixing of sulphur and oil is effected by the aid of an iron paddle with hard-wood handle, although a mechanical agitator may be installed. The fireplace over which the boiler is heated is provided with a grate, or fire-box on wheels, or with a reversible grate which permits quick removal of the fire in case of danger. When the factice is formed the fire is lowered; the liquid factice is removed with a metal ladle having a wooden handle, and is poured into molds.

The steam-heated apparatus consists of a cylindrical vat of riveted sheet iron, steam-jacketed so as to permit the mass to be regulated to the proper temperature. This vat has a capacity of 130 gallons, the right charge of oil being 50 gallons. These large dimensions are necessary on account of the frothing that takes place. The upper part of the apparatus has a large conduit to receive the foam and convey it by piping to the receiving vat. The oil thus recovered is then returned to the heating apparatus.

The boiler is provided with a border or extension constructed and adjusted similarly to that of the apparatus used with direct fire, and serving the same purpose. This border often has a sliding valve. The steam jacket of the apparatus is supplied with a pressure indicator and safety valve. A thermometer is provided, graduated to 250 degrees C., with stem long enough to reach into the oil during boiling. The mass is stirred by hand or by a power agitator having a speed of ten revolutions a minute.

The jacketed boiler is supported on two trunnions. A lever permits the boiler to be inclined so that it may be emptied when the operation is finished. Steam is led into the jacket through one of the hollow trunnions. Often a ladle is used to empty the boiler, as in the case of the apparatus for direct firing.

Factices prepared by steam are more regular and homogeneous than those obtained by the direct-fire method.

A "SEROON" FROM BOLIVIA.

Ninety-five per cent of Beni Bolivian rubber is shipped to market by way of the Madeira-Mamoré railroad and the Amazon river. The remaining five per cent is transported on mule-back over the Andes to the West Coast whence it is shipped to market by way of the Panama canal. A reminder of this long mountain journey is here shown in the form of one of the "seroons" in which the rubber is transported over the Andes. They are really panniers made of horse- or cowhide, dried in the sun, and sewed together with rawhide thongs. These crudely made, but serviceable packages, arrive at Akron after a journey of some 5,000 miles, with their contents of Beni Bolivian rubber in good condition.

A SEROON.

The Government Takes Over Sulphur.

By Campbell Mac Culloch.

The War Industries Board has passed a resolution, approved by the President, taking over control of the production and distribution of sulphur materials. This was made necessary by the increased demand from the Government for sulphur in the manufacture of explosives and for other purposes and by the increasing burdens on the rail and water systems in the transportation of materials.

THE plain fact is that there is a very serious danger of shortage of sulphur, which menaces not only the rubber industry but a large number of parallel and important trades.

The figures given on the witness stand at a Senate hearing held on May 3 and again on May 22, in Washington, refute any possibility of mistake. There is danger, and in support of this statement, corroboration from commercial circles has been obtained. The status of the sulphur situation is that production just about balances consumption at the present time, and that the period is swiftly approaching when our use will exceed our supply by nearly fifty thousand tons per month. What will happen then to that much-advertised reserve stock on the dumps of the mine in Louisiana need not be recited here, for it is fairly obvious.

In these columns it is hardly necessary to state to what extent the rubber industry is dependent on sulphur, but it may be safely asserted that if for any cause the supply of sulphur fails the industry, the rubber itself may as well fail for a corresponding period. Such, at least, is the spoken opinion of a high official of the United States Rubber Co. Much has been made of the recent arrangements to bring an ample supply of crude rubber into the country, but unfortunately and quite evidently the facts regarding sulphur bear no such satisfactory promise.

The situation told as briefly as may be is essentially this:

The supply of sulphur in the United States comes almost wholly at this time from the two great mines in Louisiana and Texas. Together they are producing something slightly in excess of 100,000 tons a month, according to government figures. The Government is using a little more than 70 per cent of this amount for its explosives program, and the industries—rubber, paper, fertilizer, etc.—account for some 30 per cent more.

In the transcript of the public hearings of the Senate Committee, the engineers of the Mines Bureau of the Interior Department have stated—quite conservatively, however—that the Government is shortly to open certain great explosives plants, and that private enterprise will open certain others. What transpired at these hearings in the way of testimony was this:

Arthur E. Wells, consulting engineer for the Bureau of Mines, the War Department, and the War Industries Board, took the stand and in response to questions from members of the committee said:

At the present time the consumption of brimstone for all purposes is just about equal to the production of these two deposits (Louisiana and Texas). I doubt if there is a very large tonnage going to foreign countries. Some is going into Canada to be made into acid and also into the paper pulp industry in Canada, but my understanding is that there is very little brimstone being exported to the Allies across the water. There are now some plants coming in that will require brimstone this summer and fall, and we have not yet begun to supply the Government's powder plants with brimstone, so that before the end of this year the demands for brimstone will be greater than those two properties can possibly meet.

SENATOR JONES: Have you obtained an estimate from the War Industries Board, or any other source, as to the probable increased requirements?

MR. WELLS: I have kept track right along, and am making a report to the War Industries Board as to future possible requirements for brimstone. We are doing that very thing for the War Industries Board; finding out what the War Department has in view, how soon new acid plants will be required, and what they will have to use.

SENATOR JONES: Then you are gathering that information yourself?

MR. WELLS: Yes, sir.

SENATOR JONES: What is the result of your investigation?

MR. WELLS: As I said, before the end of this year we will be requiring brimstone at a rate greater than those two properties can produce. By the end of this year we will be requiring far greater amounts. . . . We will be obliged to use brimstone at the rate of about 110,000 tons per month for acid alone. When you add about 35,000 tons per month going into other industries, it will make total brimstone requirements by the end of the year about 145,000 tons a month. The rate of production of those two brimstone deposits now in operation is only about 100,000 tons a month, so that we are going into our stocks at the rate of 45,000 tons a month.

There's the situation. Men accustomed to take certain facts and apply cold logic to them do not disguise from themselves that with a government having a great war upon its hands; with the urgent need for producing explosives at a greater rate than has ever before been needed; with the condition of being unable to produce those explosives without sulphuric acid; with acid needs piling up on every hand; with a present limited supply of sulphur; and with certain industries of a relatively more or less important nature using large quantities of the needed sulphur, the Government is going to protect its explosives requirements first, and should properly do so. That spells commandeering the present supplies of sulphur in the United States, and it doesn't require clairvoyant powers to discern it, say the men of vision.

An official of a great rubber manufacturing concern, with headquarters in New York, said recently:

There need be no question as to the facts. We need not fear that such of our factories as are now working on government orders will fail to get sulphur, but we certainly can fear that unless some added supply is found, factories operating on commercial work will be cut off. The wonder is that we have not been frankly told what the situation is.

That opinion has been echoed by others in the industry, even more emphatically.

While sulphur is the main issue in the rubber trade, sulphuric acid is also a requisite, but not to such an extent as in other industries. It is acid that is needed for explosives; it is acid that is needed for fertilizer, and acid that the storage-battery people require for their electrolyte. It is also true that sulphuric acid can be produced direct from pyrites, but, and here is the difficulty, acid production in the past has been largely from Spanish pyrites, brought in at the rate of over a million tons a year from the great Rio Tinto mines in Spain, and this importation has been almost entirely cut off because of the lack of ships. No one familiar with the situation believes for one instant that Spanish pyrites can be counted on. Then we have to turn to American pyrites, of which there are certain deposits. There is a large one in Virginia, and others in New York state, while some exist in the West. The one in Virginia is closed because of a collapse of the main shaft, and that mine is filled with water. Months will elapse before it can be operated again, even under the best conditions—which do not exist at present. New deposits of pyrites—and pyrrhotite, which is a lower grade of sulphur-bearing ore—have been found, but such things are not found to-day and worked to-morrow. They require development, and development requires money; they require ex-

tensive and expensive mining plants, and these mean time and money again. The experts have stated that more than a year must pass before such sources can be made productive.

And of course the question has arisen as to whether there is not another sulphur source, and turning once more to the Mines and Mining Committee testimony mentioned above, we find that Mr. Wells stated that the best chance for immediate results lay in the adoption of the thiogen process for the recovery of metallic sulphur from waste smelter gases. He said:

The Bureau of Mines carried out quite an elaborate investigation as to the thiogen process, and determined that technically the process is sound. The indications from our experiments have been that sulphur can be obtained in that manner at a cost in the neighborhood of from $10 to $13 a ton.

Briefly, the thiogen process is a method of recovery of pure metallic sulphur from waste smelter gases which not only are waste, but which also cause hundreds of thousands of dollars in damage to crops wherever the smelters exist. The process is the invention of Professor S. W. Young of Leland Stanford, Jr., University, and has been turned over to the Government for such use as may be needed. Mr. Wells went on to explain the situation in this way:

The two brimstone deposits (Louisiana and Texas) now are producing somewhere near their maximum tonnage, and we are using it all. We are using between 3,000 and 3,500 tons a day. The facts are, of course, that we can readily obtain a thousand tons (of sulphur) a day from the smelter smoke.

There, then, is the situation. Existing sources cannot be depended on for much increase. The thiogen process will readily produce a thousand tons of sulphur a day, and the process is under government control at this time.

Referring briefly to Mr. Wells' statement that little if any sulphur is being shipped abroad, it is learned that the chief source of European supply, the great Sicilian mines, will produce less than one-half their usual output this year. In fact, the official statement is made that this production will run under 200,000 tons for 1918. Under these circumstances, and with increased explosives activity on the part of the Allies, it is by no means unlikely that the United States will have to export sulphur to both France and England. If that happens, the monthly supply will have to be in excess of 200,000 tons of sulphur to take care of our own affairs and those abroad.

Japanese sulphur has occasionally been spoken of as a factor in our situation. While it was partially so, of late it has ceased to be, since the Japanese Government is no longer shipping in sulphur to us, finding it necessary to conserve its supply for its own needs.

It was learned that urgent recommendations are to be made to the War Industries Board to take up measures for immediate relief, and that these are to come from the industries affected.

The recent meeting of the Chemical Alliance at the Hotel Biltmore showed that a serious situation exists, and measures were there taken to conserve the existing supply by distributing it evenly in proportion to industrial needs. Two hundred users of sulphur and sulphuric acid were present at the meeting, which was attended by representatives of the War Industries Board who spoke on the gravity of the situation and the need for prompt action.

AMERICAN BANKS IN VENEZUELA.

Commercial exchanges with Venezuela have been facilitated by the recent establishment of two American banks in Caracas. The opening of a branch of the National City Bank of New York was immediately followed by the Banco Mercantil Americano de Caracas, a subsidiary of the Mercantile Bank of the Americas (Incorporated) of New York. These new institutions, together with the Royal Bank of Canada and the Venezuelan banks, provide facilities ample for all commercial business in existence or in prospect.

FIRE HAZARDS IN RUBBER FACTORIES.

IT is an alarming fact that America prepared to enter the greatest struggle in world history with a per capita increase in fire loss from $1.71 in 1915 to $2.10 in 1916. The $214,000,000 thus wasted in fires, many of which were preventable, would have built nearly 30,000 airplanes or several hundred torpedo boat destroyers.

Industry must be safeguarded by reducing fire hazards to the very minimum. Manufacturers can accomplish wonders by attending to this matter to make certain that disorder and uncleanliness, ignorance and carelessness, defective equipment, faulty construction and insufficient protection do not exist in their plants.

The fire hazard in rubber factories is particularly great in departments where volatile solvents and other inflammable materials are used, and the following precautions suggested by the National Board of Fire Underwriters should invariably be observed:

Open lights or flame of any character should never be permitted for use in the presence of light combustible or volatile inflammable materials, or where inflammable dust is liable to be present; incandescent electric lights in such localities should be of the keyless socket pattern and enclosed in wire guards, with operating switch located in an apartment separated from the inflammables.

Wherever inflammable vapors are present, special vapor-proof electric lamps are necessary; a careful arrangement of the location of all switches is also required.

All specially hazardous and dangerous processes or devices which may serve to promote fire, should be, where possible, carefully segregated and properly separated from communication with the plant in general, and also receive special consideration in relation to fire extinguishing appliances.

If possible, keep oils outside the main buildings in a separate oil house. Never keep the main supply of inflammable oils, such as gasoline, kerosene, benzol, acetone, or mixtures containing them, inside the main buildings except in such nominal quantities as may be necessary to the processes.

Illuminate the oil house safely and so brightly that there will never be a temptation for an employe to light a match in order to see while drawing oil.

Cut off, by means of a standard fire wall, the place where any process using inflammable solvents is carried on. These are always dangerous.

Catch oil drip in metal pans; never use sawdust or other combustible materials to absorb it. Excellent oil cabinets are made which drip back into the main tank.

Keep pails of sand for use in case of fire where inflammable liquids are used or stored, and have a scoop for its distribution. Dry sand forms a very efficient means of extinguishing such fires by smothering the flame.

DOMESTIC PRODUCTION OF TALC INCREASING.

The increased demands of the war for talc, much of which is used in the rubber trade, have been met largely by increased domestic production.

The total output in 1917, the maximum reached, was 198,613 tons, valued at $1,889,672, a gain as compared with 1916 of 3 per cent in quantity and more than 7 per cent in value.

Talc is being mined in Vermont, New York, Virginia, Pennsylvania, North Carolina, New Jersey, Massachusetts, Maryland, Georgia and California. In 1917 Vermont exceeded New York as the largest producer, but on account of the more fibrous character of the New York product its total value remained greater.

The resources of talc in the United States are large and are sufficient to supply the demand for most grades for many years to come.

The quantity of talc imported for consumption in 1917 was less than 10 per cent of the domestic output, but a larger proportion of it is of high grade. More than half the talc imported comes from Canada and is of a grade that commands a higher price than the talc obtained from the principal domestic sources.

What the Rubber Chemists Are Doing

INFLUENCE OF CERTAIN CHEMICALS ON THE INHERENT QUALITIES OF RUBBER.

IN the "Archives of Rubber Culture," February, 1918, experiments on the influence of certain chemicals commonly used in the preparation of plantation rubber are reviewed by Dr. O. de Vries, as follows: (1) anti-coagulants—sodium sulphite, formalin and soda; (2) anti-oxydants—sodium bisulphite, sodium thiosulphate; (3) sodium acetate and sulphurous acid.

SODIUM SULPHITE added to the latex effects a small improvement in the properties of the rubber. The usual quantity of one gram of crystalline sodium sulphite in 20 per cent solution per liter of 15 per cent latex gives an increase in tensile strength up to 0.03 kilograms per square millimeter; the standard time of cure diminishes by five to ten minutes, the slope of the stress-strain curve by one to one and one-half, and the viscosity index shows an increase of 0.02 to 0.04. These figures hold for the preparation of crêpe. In making smoked sheet the effect may be two or three times as large. Although small, this improvement seems to place sodium sulphite first in importance as an anti-coagulant and the somewhat slower rate of drying of the rubber does not form a drawback.

FORMALIN has an effect just opposite to that of sodium sulphite on the qualities of rubber. Rate of cure and viscosity show a marked decrease; tensile strength and slope deteriorate somewhat. For the usual dose of one-half cc. commercial formalin (diluted one to 40) per liter of latex, the tensile strength of crêpe rubber diminishes up to 0.02 kilograms per square millimeter. The standard time of cure shows an increase of two to five minutes; the slope, of zero to one-half, while the viscosity index decreases by 0.02 to 0.05. For large quantities of formalin the effect is more marked, while for smoked sheet the difference may be still greater. The deterioration of the rubber, though always evident, for the usual amount of formalin, is not so large as to cause a serious drawback, the difference in figures remaining well within the limits of the ordinary variation of plantation rubber.

SODA (ordinary washing soda) used as an anti-coagulant stands between sulphite and formalin. Its effect on the inherent qualities of rubber is slight. In the usual quantity of two grams crystalline soda in 20 per cent solution per liter of latex there is an increase in tensile strength up to 0.04 kilograms per square millimeter; the time of cure diminishes by three to ten minutes; the slope, by zero to one, while the index of viscosity shows an increase of 0.02 to 0.04. The effect of larger quantities may be somewhat greater.

BISULPHITE OF SODA in the usual quantity of one-half to one gram of bisulphite per liter of latex increases tensile strength up to 0.05 kilograms per square millimeter; decreases time of cure by five to ten minutes; decreases slope of curve by one to one and one-half, while the index of viscosity increases by 0.03 to 0.15. For larger quantities of bisulphite the effect is greater. This improvement of inherent qualities was anticipated because both sulphite and bisulphite give the same decomposition products with acetic acid, namely, sodium acetate and sulphurous acid. The effect of bisulphite on rolled coagulum shortly after coagulation is always a small but distinct improvement in all qualities. The effect may be obscured in this case by the disinfectant action of bisulphite. With formalin, both the chemical and disinfectant actions retard the rate of cure and decrease the viscosity, but with bisulphite these two actions are opposite in effect, the bisulphite itself improving the inner properties, while as a disinfectant it excludes the improvement caused by putrefactive changes.

SODIUM THIOSULPHATE was used in 1914-1915 because of the scarcity of bisulphite. It was found to decrease the viscosity somewhat and its anti-oxidizing action is less marked than that of bisulphite. The effect of sodium thiosulphate is in all cases a very small decrease in rate of cure and viscosity, while the difference in tensile strength and slope of curve is negligible.

SODIUM ACETATE is formed after addition of acetic acid in the presence of sulphite and bisulphite of sodium and investigation was made to ascertain how far the effects obtained might be due to the action of this substance in the latex. The experiments showed that rate of cure and viscosity are increased somewhat; other improvement, if existing, was very slight.

SULPHUROUS ACID. A 0.95 binormal solution of sulphurous acid (prepared from bisulphite) used in proportion of one to 165 of rubber, showed a coagulating effect equal to that of acetic acid, one to 150. Sulphurous acid as a coagulant has a favorable influence on quality, as compared with acetic acid, and shows a small increase in tensile strength and viscosity and a marked decrease in slope of curve, while the rate of cure remains unaffected.

It may be concluded that the increase in rate of cure caused by sulphite and bisulphite is due to formation of sodium acetate. The decrease (improvement) in slope of curve of one to one and one-half, both for sulphite and bisulphite, is caused by the sulphurous acid which, in all quantities used, gave a decrease in slope of one to two.

As both sodium acetate and sulphurous acid give an increase in tensile strength and viscosity, this is naturally true also for sulphite and bisulphite. The somewhat slower rate of drying of the rubber caused by sulphite and bisulphite must probably be ascribed to the sulphurous acid and not to the sodium acetate.

MOISTURE IN PLANTATION RUBBER IN JAVA.

A paper on the moisture content of plantation rubber in Java, by Dr. O. de Vries ("Archives of Rubber Culture," January, 1918), is briefly summarized by the author as follows:

Moisture determinations were made on plantation rubbers as they arrived at the central rubber station at Buitenzorg, Java, for testing during the period from October to December, 1917, which marks the end of the dry and the beginning of the wet monsoon. Samples were tested so soon after arrival that the moisture content may be regarded as that of the rolled up and packed sample before it took the degree of moisture corresponding to the weather conditions prevalent in Buitenzorg. The determinations were made by heating at 100-105 degrees C. to constant weight, two hours generally being sufficient.

The moisture content of 54 samples of first latex crêpe from 18 estates varied from 0.34 to 1.01 per cent, average 0.67 per cent. Practically up to one per cent must be considered the normal moisture content for this period. In the dry months the average may be found to be somewhat lower.

Ninety-six samples of smoked sheet from 25 estates ranged from 0.43 to 1.16 per cent, average 0.76 per cent moisture content. Various lower grades, including thick crêpe, lump, scrap, etc., seldom show in excess of one and one-half per cent moisture.

Somewhat lower results for moisture have been obtained by the Netherlands Government Institute at Delft, Holland, as follows: for 35 samples 0.30-1.08 per cent, average 0.61 per cent; for 102 samples of crêpe 0.18-0.90 per cent, average 0.42 per cent. A better comparison will be possible when figures ranging over a whole year are available.

The loss of two to three per cent in washing and drying for plantation rubber, noted in American manufacturing practice, is considered excessive by the author. Only one per cent of this

loss can be moisture and the balance is thought too high for "dirt and other foreign matter."

Experiments by Miss Krayenhoff van de Leur indicate that rubber at 30 degrees C. (86 degrees F.) must contain a higher percentage of moisture to be in equilibrium with air of the same relative humidity than at 16 degrees C. (61 degrees F.). This point bears on the inevitable loss in weight due to transportation from tropical to cooler climates and requires further systematic research.

DETERMINATION OF NITROGEN IN RUBBER.

Matthew Howie, chemist of the Castle Mills, Edinburgh, Scotland, gives in the "Journal of the Society of Chemical Industry," March 30, 1918, his method for the determination of the nitrogen content of rubber, as follows:

It is generally held that in Kjeldahl estimations, of whatever kind, the end point or the point at which digestion with sulphuric acid may cease, is when the solution becomes clear. The factor which should decide the completion of any determination, however, is not the point at which the solution becomes transparent, but that at which the nitrogen compounds present have been completely converted into ammonia. Owing to the large proportion of hydrocarbons present in rubber, it was found that in practically every case at least six hours' time was necessary to clarify the solution, and it was decided to determine whether or not the time of heating could be curtailed.

In each determination about one gram of rubber was digested with 30 cc. of sulphuric acid, seven grams of potassium sulphate, and about one gram of anhydrous copper sulphate. Six separate estimations were carried out in which, when heating was discontinued after from one to six hours, respectively, the nitrogen was determined in the usual way. The mixture digested for six hours became quite transparent, although not colorless. The others still contained varying proportions of suspended carbon. The results obtained are given below and show that for rubber it is not necessary to clear the solution and that from three to four hours is sufficient to get the maximum figure:

	Plantation Sheet.		
Hours of Heating.	Sample I, Nitrogen %.	Sample II, Nitrogen %.	Manihot Rubber. Nitrogen, %.
1	0.19	0.31	0.68
2	0.20	0.30	0.70
3	0.23	0.32	0.72
4	0.24	0.33	0.72
5	0.23	0.32	0.73
6	0.24	0.32	0.72

COMPARATIVE PHYSICAL TESTS OF RUBBER.

In the table below A is the elongation in millimeters at the breaking point of a 100-millimeter bar test piece. R is the force in grams per millimeter at break. $C = \frac{AR}{2}$ is a coefficient to which no physical significance is to be attributed, but which has the advantage of combining the two preceding numbers in a single term.

Rubbers.	Genera.	A.	B.	C.
Brazilian Pará	Hevea	842	1.354	575
Plantation Pará	Hevea	840	1.339	572
Manaos Sernamby	Hevea	820	1.200	492
Manicoba	Manihot	820	0.920	377
Peru Sernamby	Castilloa	930	0.750	348
Caucho	Castilloa	910	0.720	327
French Soudan	Landolphia	1040	0.700	364
French Guinea	Landolphia	960	0.670	320
Indo-China	Ficus elastica	1010	0.490	245

It will be noted that in the above table the characteristics of Brazilian and Plantation Pará are practically alike. However, in each case the figures are the average of about 20 tests. If we select the largest and smallest values for the coefficient of each kind, designated in the table below as C and c, we find:

	C	c	Difference
Brazilian Pará	670	441	227
Plantation Pará	710	392	318

Plantation Pará exhibits greater inequality in quality than that from Brazil. Ceara rubbers have a special quality of "nerve." Castilloa rubbers, if well prepared, give good results. Funtumia rubbers are of second quality. ("Le Caoutchouc et la Gutta-Percha," May 15, 1918.)

CELLULON.

Information concerning "Cellulon," the new German substitute for jute, cotton and other fibers, is given by the "Textile World Journal." There are two processes of manufacture. In the Turk process cellulose pulp is conducted over drums having on the surface parallel grooves corresponding to the size of the yarn to be produced. The roving of cellulose is taken from the drum by special apparatus and twisted. In the Scherback process cellulose is added to cotton waste or wool. The somewhat longer fibers of the cotton or wool bind together the shorter cellulose fibers and thus a yarn is produced having a cotton or wool feel and appearance. In Norway one large mill is producing paper fabrics on a large scale. They consist of 75 per cent paper and 25 per cent cotton, and are said to be soft and warm, a little heavier than ordinary cotton goods, but not quite so strong.

NEW METHODS FOR COAGULATING LATEX.

SPECIFICATIONS from the General Rubber Co. have recently been accepted in the Far East, for a series of patents relating to improvements in apparatus and process for treating latex, and for baling crude rubber. The salient features of the apparatus and processes are condensed from the patent descriptions and given in outline below.

APPARATUS FOR COAGULATING LATEX.

The objects are to treat latex in large bulk and to produce dense coagulum in continuous lengths that may be easily handled.

The apparatus consists of a cylindrical tank with strong cover provided with hinged bolts. A removable spiral partition extends the entire height of the tank, making a tight fit with the bottom, and is attached to the under side of the cover by an upright pin. This partition provides continuous spaces between its successive convolutions. The tank may be closed gastight and coagulation conducted under pressure of any desired gas.

The process consists in coagulating latex and shaping it during coagulation as a continuous strip. The latex of *Hevea brasiliensis* expands upon coagulation and the force of this expansion is employed to provide a dense compressed coagulum. In operation, sufficient latex is placed in the tank to fill it completely when the cover and attached spiral partition are set in place. The expansion which occurs during coagulation produces a fixed volume of coagulum. Coagulation may take place with or without the addition of various modifying agents, such as accelerators, retarding agents, antiseptics, etc. Sulphur or other vulcanizing agents may be added before or after coagulation. The coagulum resulting from the process is a continuous strip which lies in the tank, upon removal of the spiral partition, as a laminated roll—solid, dense and fine-grained.

IMPROVED COAGULUM.

The process is carried out by subjecting a mass of coagulum to one or more reactive substances adapted to form in the mass a portion capable of preventing the passage of colloidal nitrogenous or similar matter through the coagulum, thus preventing the protein-like material from exuding to form a slime. The treatment is continued sufficiently long to form a semi-permeable membrane in the mass which will permit the passage of moisture to allow rapid drying while retaining the colloidal nitrogenous materials.

The reactive substance preferably employed is an alcoholic solution of beta-napthol containing five parts of the latter to 100 parts of solvent. A freshly pressed block of coagulum is allowed to remain in this solution for a period of 30 to 40 seconds. A surface membrane formed thus quickly serves to retain the nitrogenous matter while permitting free drying in the usual manner.

A second improvement has for its object the preparation of a rubber coagulum adapted to dry rapidly, free from a tendency to darken and from slime formation and hence presenting no field for animal or plant growth, while retaining the nitrogenous matter thoroughly disseminated through the mass. The reactive agent preferred is boric acid added to the latex in small quantity —approximately one-third of one per cent.

A third improvement relates to the prevention of slime formation. The process consists of passing a quantity of uncoagulated *Hevea* latex through a series of overflow pans in a heated vacuum chamber and, before actual boiling commences, raising the temperature of the latex to at least 80-85 degrees C. to produce coagulation of the nitrogenous material of the latex. The drying of the latex under low vacuum is continued until the resulting mass contains from 18-20 per cent of moisture. The drying in the presence of a circulation of deoxygenated air proceeds rapidly while the partial vacuum is being formed. Antiseptics may be added to the coagulated or uncoagulated latex in connection with the evaporation. For example, two per cent betanapthol may be added to the uncoagulated latex. Other antiseptics that may be used are sodium naphtholate, or five per cent of pine tar creosote in sodium cresylate solution, or one per cent of sodium fluoride.

The above-outlined improvements conserve the nitrogenous and other constituents normally present in the latex, hasten the drying, and improve the rubber obtained. Nitrogenous and other materials, such as proteins, resins, sugars, gums, etc., held in solution, suspension, or other form in the latex, occur also in the coagulum and under ordinary conditions of coagulation they exude from the coagulum as formed, producing a slime upon the surface. The constitution of the rubber is thus changed and the slime offers a field for the growth of moulds, yeast, fungi, bacteria, vermin and the larvae of insects, and, by forming a coating, hinders the drying of the coagulum.

IMPROVEMENTS IN BALING.

Improvements in baling consist of compressing relatively thin unit sections of coagulum and subsequently recompressing a number of such sections into a block for baling, which is strapped, covered with muslin, and protected with an outer covering of burlap.

CHEMICAL PATENTS.

THE UNITED STATES.

Plastic Composition and Process.—A resilient, flexible, plastic composition to be employed as a substitute for rubber is produced by dissolving shellac in alcohol to a thick paste, arranging fibrous material in layers, pouring the paste on the layers of fiber, mixing the ingredients thoroughly together and saturating the pressed materials with formaldehyde. (Charles B. Wood, Charlestown, West Virginia, United States Patent No. 1,265,855.)

Treating Latex.—An apparatus and process adapted to coagulate latex, under pressure in a specially partitioned chamber, and add to it a vulcanizing agent. (Edward Mark Slocum, Medan, Sumatra, Netherlands East Indies, assignor to General Rubber Co., New York City. United States patent No. 1,268,638).

Treating Latex and Latex Products.—An enzyme is added to latex adapted to react with it, and a vulcanizing agent added to the mass thus treated. (Edward Mark Slocum, Medan, Sumatra, Netherlands East Indies, assignor to General Rubber Co., New York City. United States patent No. 1,268,639).

GERMANY.

Glycerine Substitutes.—When glycerine or glue is treated with a large proportion of a soluble thiocyanate, it swells up to form a solution, which, in suitable proportions of the mixture, resembles glycerine both in appearance and in some of its properties. An example of these proportions is: 100 parts of potassium thiocyanate, 50 water and 300 of a 33⅓-per cent solution of gelatine. Either alone or in admixture with viscous liquids like sugar syrup and extracts it can be used as a glycerine substitute in making printers' roller compositions, etc. (J. Traube, German Patent No. 299,228.)

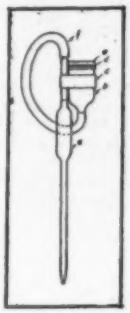
NEW ZEALAND.

Leather Substitute.—A mixture of crude rubber and pulverized waste vulcanized rubber in the form of a vulcanizable plastic mass. (William Stocks, 334 George street, Fitzroy, Victoria. New Zealand Patent No. 39,537.)

LABORATORY APPARATUS.

PIPETTE FOR FUMING ACIDS.

An improved automatic pipette devised and described by R. C. Cook in "The Chemist-Analyst" should find application in many places. Referring to the cut, the apparatus consists



of pipette (a) of the desired size, filter tube (b), large rubber band (c), small rubber band (d), length of flexible rubber tubing (f) and diaphragm (e) made of two thicknesses of dental rubber held in place by the small rubber band (d). The pipette and filter tube are rigidly fastened together by the large rubber band. By attaching the rubber tubing as shown the apparatus is complete.

It is operated by working the diaphragm with the forefinger while holding the device between the thumb and middle finger. Air is forced out by pressure on the diaphragm, the acid being drawn up into the pipette upon release. The pressure applied to the diaphragm is made great enough to cause the acid to rise above the line on the pipette. The acid will fall of its own accord and as it reaches the line the pipette is sealed by placing the finger firmly upon the rubber tubing (f) at the top. The end of the pipette is wiped with tissue paper and the sample delivered by raising the forefinger and pressing the diaphragm.

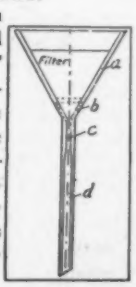
CARBONATE APPARATUS.

An apparatus based on the principle of a hydrometer, known as the Barker carbonate apparatus, has been designed for determining the percentage of carbonates in limestone or other materials. No chemical balance is necessary, nor long calculations involved, yet results are obtainable by unskilled operators, comparing favorably with the work of a skilled chemist using complicated apparatus.

The sample of carbonate under test is contained in the instrument and the carbon dioxide gas released from the sample decreases the weight. The apparatus consequently rises in the water in which it is immersed, recording on the graduated scale the percentage of carbonates from which the gas escaped. (Bausch & Lomb Optical Co., Rochester, N. Y.)

FUNNEL FOR FILTERING RAPIDLY.

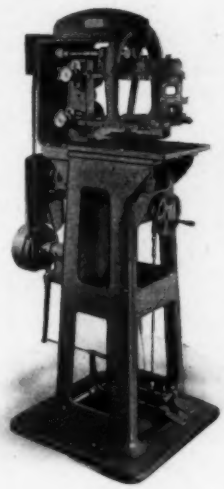
A rapidly filtering funnel of German origin has lately been illustrated and described in "Chemical Abstracts." The inner surface of the funnel *a* is recessed at *b* just above the stem, and the bore of the latter is capillary for a short distance *c*, then enlarging *d* from this capillary to the outlet. Air bubbles forming during or at the beginning of the filtration pass through the section *c* and out through the stem. The recess *b* is ground in glass or molded in funnels of other material.



New Machines and Appliances.

THE PATTEN SOLE-CUTTING MACHINE.

A NEW sole-cutting machine designed and perfected by a practical rubber footwear man is shown in the accompanying illustration. The feature of the machine is the movable head that is easily adjusted to any particular length when cutting children's soles, and the same is true for the largest size and all sizes between. It is also adapted to cutting all styles of tap soles, including the square end or spading tap.



The machine is well-proportioned and of rigid construction, thus eliminating the vibration which is liable to occur in a machine of this character. Bronze bushings have been used throughout, also thrust ball-bearings, roller chains, and hardened and lapped gears, making a smooth-running and durable machine that is easily operated. (Patten Manufacturing Co., Malden, Massachusetts.)

A NEW YARN AND CLOTH TESTER WITH AUTOGRAPHIC RECORDER.

The addition of the automatic recorder has greatly enhanced the value of this tester for many classes of materials. This mechanism automatically records a chart line on a standard letterhead or specially ruled sheet, showing the exact relation of stretch to the tensile strain at every point of the test.

The strength and elasticity of airplane-wing fabric and like materials can be accurately charted on this machine. Several tests of both warp and filling may be recorded on the same sheet, in ink of different colors, for the purpose of comparison.

This machine is adapted for testing all yarns, from the most delicate to the heaviest, as well as cloth and fabrics of every weight and weave up to 300 pounds capacity, the change being made without the use of tools in less than two minutes.

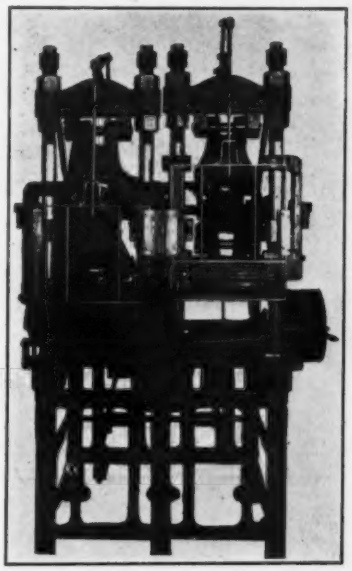
The recording head is designed on the true dead-weight principle and provides two weights with two rows of graduations on the dial, thus making a delicate machine for tests up to 150 pounds and a heavier machine of 300 pounds capacity.

The cloth-testing jaws are of cast steel in deep channel section, provided with interchangeable anvils allowing tests to be made one inch and two inches in width or any combination of these widths in any length desired, gripping the sample at every point without cutting.

The driving mechanism is enclosed in a cast-iron box at the bottom of the machine and is operated by a one-inch flat belt requiring less than one-sixth horse-power. (Henry L. Scott & Co., Providence, Rhode Island.)

MACHINE FOR MOLDING PLASTIC MATERIALS.

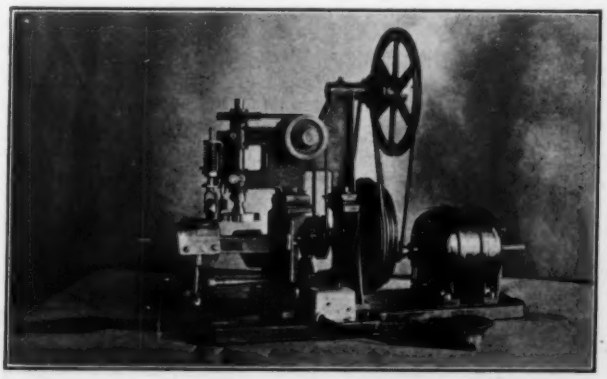
The machine illustrated herewith is designed for molding plastic materials, including Bakelite and Condensite. They are employed in the manufacture of electric insulation parts, buttons and composition novelties that may be produced in greater quantities on these machines than by the ordinary method. Furthermore, women operators, without previous experience, can be employed, as the operation is extremely simple and automatic guards are provided so that accidents are almost impossible.



The molds are set in a cast iron shoe and held by set-screws and are adjusted to meet each other by hexagon nuts placed on the tie-rods. The molds are chambered for steam or cold water so that they may be alternately heated or cooled almost instantly. The machines are made in two types—the duplex, shown in the illustration, and a single-geared machine. (Terkelsen & Wennberg, 326 A street, Boston, Massachusetts.)

THE MORRIS AUTOMATIC SOLE-TRIMMING MACHINE.

This is a modification of the sole-trimming machine that was illustrated and described in THE INDIA RUBBER WORLD, October 1, 1917. The improvements comprise a round disk that rotates in a horizontal plane directly in front of the cutters; an adjustable spring-roller located above this disk, and an adjustable guide that protects the sole and deflects the trimmed overflow.



The surface of the horizontal disk is roughened and runs in the opposite direction from the cutters. The tension of the

vertical spring-roller is controlled by a wing-nut and the space between the roller and disk is a little less than the thinnest or heel-part of the sole.

The pressure and friction on the sole as it passes between the revolving disk and the spring-roller holds it in contact with the cutters and at the same time causes the sole to travel around as the cutters trim off the overflow. (T. W. Morris, 3304 Warren avenue, Chicago, Illinois.)

THE NAPIER BAND-SAW MACHINE.

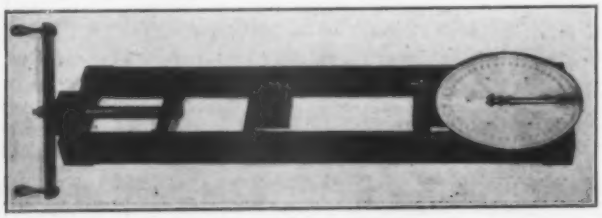
The principle of a continuous-stroke hack-saw is embodied in this machine that is really a modified band-saw and designed to perform all the functions of a power hack-saw. In cutting solid and pneumatic tires and mechanical rubber goods with metal insertion, its use is plainly evident and suggests the possibility of cutting crude rubber, particularly that which is compressed in bales.

The machine feeds into the work by gravity due to the balanced weight of the tilting head, and a spring at the back of the machine insures constant feed from the start to the finish of any cut. The cutting band is lower than the returning band, thus making it possible to cut off any length required. By means of roll guides the band-saw is directed so that its travel between the truss arms is absolutely vertical, thus assuring straight cutting. A rotary pump of simple design provides ample cutting compound for the saw.

The specifications are as follows: floor space, four by six feet; height, floor to table, 26¾ inches; length of band-saw, 12 feet, 4½ inches; net weight, 1,700 pounds; power required, one horsepower. (Napier Saw Works, Inc., Springfield, Massachusetts.)

TESTING MACHINE FOR BELTING.

The testing machine illustrated below is designed for determining the tensile strength and stretch of leather, rubber, balata or canvas belting or similar goods. It may be arranged for operation by either hand or power. It is very substantially built, the frame consisting of steel channels upon which is fixed a 1,000-

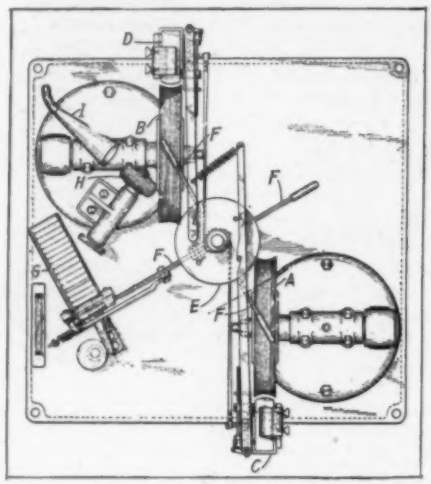


pound spring dynamometer carrying a screw-operated clamp for holding one end of the specimen under test. The opposite clamp is fastened to a cross-head sliding between the sides of the frame, actuated by power applied through the screw. The machine is 60 inches over all and is designed for horizontal operation. (John Chatillon & Sons, New York City.)

MACHINERY PATENTS.

MACHINE FOR POLISHING PEN CAPS OR BARRELS.

FOUNTAIN-PEN caps and barrels are polished on this machine, a plan view of which is shown in the illustration. The polishing wheels *A* and *B* are belt-driven and journaled in stands that are bolted to the table of the machine. Each wheel is supplied with abrasive or polishing material by automatic devices *C* and *D*. The revolving turret-head *E*, carries four mandrels *F*, *F*, *F*, *F*, that successively register in front of the magazine *G* containing the parts to be polished.

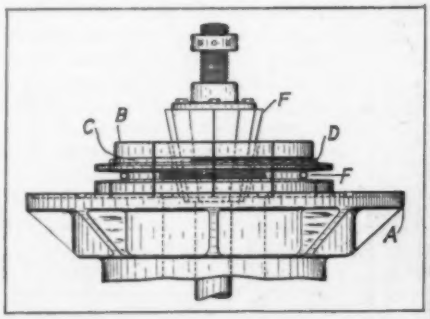


In passing, the pen cap or barrel is automatically placed on the ends of the mandrels and, as the turret revolves, each is successively brought in contact with the polishing wheels *A* and *B*, and finally removed by the wheel *H* that delivers the polished articles to the chute *I*. (Frank K. Mooney, assignor to The Conklin Pen Manufacturing Co., both of Toledo, Ohio. United States patent No. 1,267,574.)

WIRE CABLE RINGS FOR BEAD CORES AND PROCESS OF MANUFACTURE.

The object of this invention is to produce a standard-wire ring of sufficient strength and flexibility for use in the manufacture of inextensible bead cores for pneumatic tires.

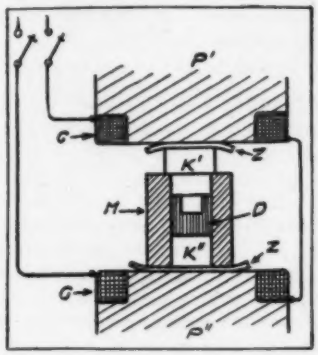
Wire cable comprising a central strand about which is twisted six wire strands, is cut to length and the ends electrically welded together. The annular welded cable is then stretched and incidentally tested for strength on the machine here shown. This comprises a circular bed plate *A* having radial guide grooves for a series of radially-movable blocks or segments *B* which are circumferentially grooved at *C* to receive the ring *D*, there being a flange on the blocks just below this groove and an annular retracting spring *E* encircling the blocks in a groove below the flange. A pyramidal wedge member, *F*, acting upon the inner ends of the blocks, *B*, by its descending movement to a predetermined position, forces the blocks outwardly to perform the stretching and sizing operation.



When the wedge is withdrawn upwardly the spring retracts the blocks so as to release the ring. (John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York City. United States patent No. 1,267,396.)

ELECTRICALLY HEATED MOLDS FOR PHENOLIC CONDENSATION PRODUCTS.

A paper by Harold E. White, that was read at the summer meeting of the American Society of Mechanical Engineers, describes a novel method of electrically heating molds in the manufacture of phenolic condensation products on a small scale. All that is required is an ordinary hydraulic press, or even an arbor press if the articles are small, and an alternating electric current.



The heating action is shown in the illustration in which P' and P'' are the cast-iron platens of the press, M the matrix, and K' and K'' the plugs by which the molding material D is pressed in the matrix. C and C are current-carrying coils. Since the magnetic field is the means of carrying the energy to the mold, it will be seen that the part of the mold in the plane of the coil heats most rapidly. The ends of the mold in contact with the platens lose heat rapidly, so that it is necessary to protect them against such loss by asbestos or pasteboard sheets at Z. Several coils of different proportions are used, long ones for the longer molds and flatter ones for the shorter. The magnetic return-circuit consists of leakage through the air and through the massive parts of the press. Cast-iron being of low conductivity losses are therefore very small. Cast-iron would not be a good material from which to make the molds. By the induction method of heating it is possible to pile several thin molds on top of each other and heat them all at once.

The electrical heating of rubber molds, according to the R. B. Price patent, was illustrated and described in THE INDIA RUBBER WORLD, December 1, 1917.

OTHER MACHINERY PATENTS.

THE UNITED STATES.

NO. 1,266,364. Tire-building machine. M. B. Wheeler, New York City.
1,266,901. Repair vulcanizer. N. M. Anderson, assignor of one-half to W. T. Jean—both of Worthington, Indiana.
1,267,080. Strip-winding machine. O. I. Judelshon, Brooklyn, New York.
1,267,493. Rubber washmill. P. E. Young, Fairhaven, Massachusetts, assignor to Acushnet Process Co. of New York, Inc., New York City.
1,268,151. Liner strip applying device. J. Rettell, assignor to Morgan & Wright—both of Detroit, Michigan.
1,268,477. Heel trimmer. W. G. Lerch and C. P. Whisler, assignors to The Miller Rubber Co.—all of Akron, Ohio.
1,268,482. Tire-carcass supporting means. H. I. Morris, assignor to The Savage Tire Co., San Diego, California.
1,268,789. Machine for sizing transplit rims. R. S. Bryant, deceased, by O. H. Jobski—both of Cleveland, and J. H. Griswold, East Cleveland, special administrators, assignors to The Standard Welding Co., Cleveland—all in Ohio.

THE UNITED KINGDOM.

114,818. Electric vulcanizer. Robert & Desaules, Garage Central, and A. Barbier, 99 rue l'Allemand—both in Neuchatel, Switzerland.
114,872. Machine for making two-core electric cables built up from three strips of rubber. C. J. Beaver, Rangemoor, Crescent Road, Hale, and E. A. Claremont, Broom Cottage, High Legh—both in Cheshire.
114,903. Apparatus for covering cables with lead. J. Stratton, The Lindens, Winton Road, Bowden, and E. A. Claremont, Broom Cottage, High Legh—both in Cheshire.
115,076. Improved straining-machine head. E. L. Curbishley, Wood Lea, Albert Road, Cheadle Hulme, Cheshire, and D. Bridge & Co., Castleton Ironworks, Castleton, Lancashire.
115,077. Rubber compound guide for calenders. A. Haigh and R. Bridge, Castleton Ironworks, Castleton, Lancashire.

THE FRENCH REPUBLIC.

486,437. Machine for removing tires from the cores on which they are mounted. Firestone Tire & Rubber Co.

PROCESS PATENTS.

THE UNITED STATES.

NO. 1,267,805. Method of making rubber-impregnated fabric washers for joints. G. D. Rose, Salford, Manchester, England.

THE UNITED KINGDOM.

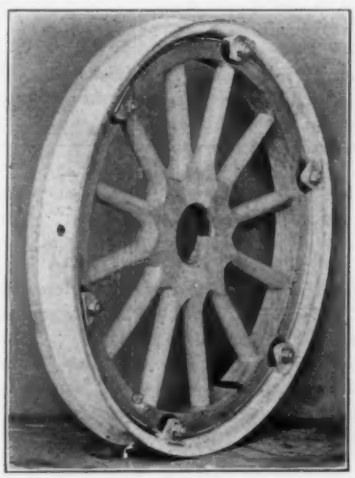
115,031. Process of forming tire covers. A. O. Abbott, 375 Hurlbut avenue, Detroit, Michigan, U. S. A.

THE FRENCH REPUBLIC.

486,281. Process of manufacturing galoshes, rubber boots and shoes, and similar articles. S. Espinosa.

A NEW STANDARDIZED RIM.

In the construction of this rim the salient features of the Baker and the old Stanweld No. 21 have been combined in a composite rim that is said to possess all the advantages and none of the faults of the original types from which they are derived.



The rim is split on the diagonal and the locking device consists of a clip, one end of which is mortised and riveted to one end of the split rim, the other end engaging a slot provided in the opposite or free end of the rim. A small latch pivoted on the inside of the free end of the rim securely locks the ends of the rim together.

The rim is attached to the wheel-rim by six wedges, the construction of which permits their use on all sizes of rims and provides for variations due to wear. The salient feature of the wedge construction is the arc-shaped front, affording a self-adjusting feature whereby the pull of the nut is direct, regardless of the degree of insertion of the wedge between rim and band. This advantage holds also in the event of a bolt having become bent out of line through accident.

It also has the advantage that it is applicable to all wheels carrying Baker felly-bands made since the year 1910. It is to be made in all sizes, including the new standard 33 by 4 size. (Universal Rim Co., 1502 Michigan avenue, Chicago, Illinois.)

BALATA BELTING FACTORY IN HOLLAND.

Balata belting is more popular in Europe than any other kind and has been used there about thirty years.

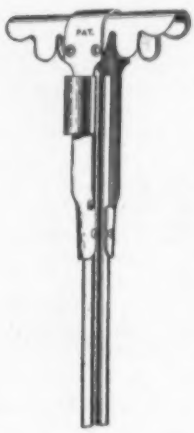
The Delftsche Leelooierij en Drijfriemenfabrek, formerly Alex Adam, a well-known belting manufacturer which has operated in Delft, Holland, for fifty years, is extending its factory and installing machinery and equipment for the manufacture of balata belting and asbestos sheet packing. The work is in charge of Anthon Berg, of Christiana, Norway, who is well-known in Akron, Ohio, in the United States, where he lived several years and directed similar installations. The Delft concern is the first in Holland to undertake the manufacture of these lines of products.

New Goods and Specialties.

RUBBER SPONGE BAGS.

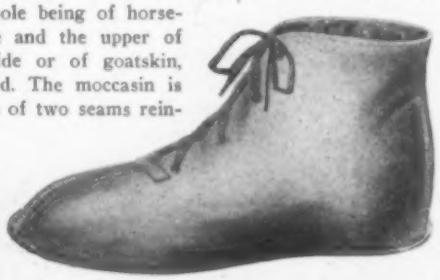
HOW to solve the problem of taking care of wet bathing accessories at the beach has been solved in the case of the sponge. One concern has brought out this summer rubber bags in different sizes from six by seven to eleven by twelve inches, to accommodate sponges of all sizes—and possibly other toilet articles which the bather may wish to carry conveniently. These bags come in different colors to match the attractive bathing caps the stores are showing, or to contrast prettily with them. Red, green, blue, and wistaria are the shades offered. The bags are made of the same kind of rubber as the caps and are topped with a ribbon casing through which runs a silk cord that serves as a draw-string. Three sizes of these dainty accessories are shown in the illustration, arranged in different ways to show the construction to the best advantage. (Faultless Rubber Co., Ashland, Ohio.)

THE "CLEAR VIEW" WINDSHIELD CLEANER.



Of devising new appliances for clearing the windshields of automobiles, there is apparently no end. Every few days a new one presents itself with claims of practical efficiency, but most of them attempt to clean only one side of the windshield, the outer one. However, the "Clear View," which is illustrated in the accompanying cut is made to free both sides of the glass from mist, water, sleet, etc. Only one operation is necessary to accomplish this, and the device fits any car, is quickly installed and wears well. The metal parts are finished in two styles, black-enameled and nickel-plated, both guaranteed rustproof. The wiping bars, which depend from the clamp which holds the accessory in place, are made of rubber and thus insure a clean, clear surface after they have been drawn across the glass. This article is patented. (Windshield Cleaner Device Co., 1960 Cheremoya avenue, Los Angeles, California.)

A MOCCASIN FOR RUBBER BOOTS.



A moccasin intended for wear inside of rubber boots is made of leather, the sole being of horsehide or cowhide and the upper of horsehide, cowhide or of goatskin, all chrome-tanned. The moccasin is shaped by means of two seams reinforced by rectangular strips of the same leather at the lower end of the front opening and at the top of the back seam. Flat cotton laces with brass tips, threaded through non-corrosive metal eyelets, close the shoe. It was first intended to supply moccasins of this type to men in the Army, but it has recently been announced that cables received from the commanding general of overseas forces advised the discontinuance of leather moccasins, and authorization has therefore been cancelled. The Hide and Leather Control Board will endeavor to find some other use for the offal from which these articles of footwear were to have been made according to the original government specifications.

A RUBBER PAD FOR HEELS.

A modification of the detachable rubber heel pad sometimes used on French heels depends on the inward-leaning side-walls for the means of holding it in place. A series of vacuum cups prevents slipping. This heel pad has been patented in several foreign countries, including Canada and England. It comes in both black and white rubber and saves the wear on the heel to a considerable degree. (E. S. Helwitz, 1129 East 15th street, Brooklyn, New York.)

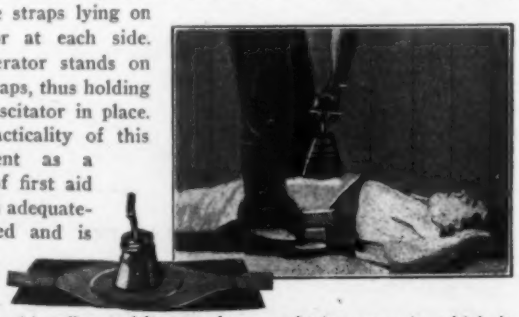
"FABRIKOID" RIFLE PROTECTOR.

The demands of the present war for protective equipment of various kinds have brought out many useful articles. The one illustrated here is a cover for a rifle, to keep out moisture. It

is made of "Fabrikoid," a rubberized cloth which is manufactured in different colors and is used for many purposes where formerly only leather was employed. The material is pliable, though strong and durable. The protector is held in place by tied straps, which permit easy adjustment. (E. I. du Pont de Nemours & Co., Wilmington, Delaware.)

A RUBBER CUP RESUSCITATOR.

A recently patented resuscitator for restoring breathing in persons overcome by smoke or water makes use of the vacuum-cup principle. It consists of a leather pad with straps, to which is vulcanized a rubber cup with a metal top having a strong handle. The device is placed on the chest of the person to be revived, with the straps lying on the floor at each side. The operator stands on these straps, thus holding the resuscitator in place. The practicality of this instrument as a means of first aid has been adequately proved and is supported by affidavits to this effect, with regard to particular cases in which it was used. (Thomas E. Acklen, 237 East McLemore avenue, Memphis, Tennessee.)



THE "HIGH-FLY" TOY PISTOL.

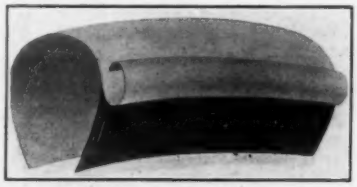
In these days of war-time, even the children's toys take on a warlike aspect. But conservation of materials and the dangers incident to the use of the old-time toy pistol with its powder caps, have led to the invention of various devices that afford the maximum of pleasure with the minimum of danger. The tiny tots are not forgotten, either, and the more complicated mechanical toy enjoyed by older children is substituted by simpler ones more suitable to the little ones and none the less fun-producing. The "High-Fly" patented toy shown here is made with a stout spring of wire, which, when released by the pulling of the trigger, throws a soft rubber ball in any desired direction, according to the position in which the pistol is held while being operated. This ball, it is claimed, is not thrown with sufficient force either to break windows or hurt the baby. It may be used in playing games, as well, indoors or out, and older children find it amusing, also. (Novelty Sales Co., Lyons, Iowa.)

THE "RUB-R-SEALED" ELASTIC FABRIC OVERSHOE.

A new kind of overshoe, for which a patent has been applied, is made of a single strip of elastic rubber-sealed webbing, three inches wide, applied to a rubber sole of the ordinary kind used on overshoes, except that the arch is also made of the elastic fabric. It is claimed for this overshoe that it conserves labor because only one pattern is used. The designer claims, also, that one or two sizes of this shoe are sufficient to keep in stock, because of the elastic feature of both the arch and the carcass. This does away with the usual assortment of odd sizes on hand at the end of the season, to say nothing about the various styles. Again, the question of fit does not have to be considered by the purchaser—he can buy a pair of these overshoes for his wife or daughter or mother, assured that they will fit the one for whom intended. While some dealers might object to fewer customers coming into their stores, none would regret the loss of the rainy-day crowds that try the patience of customer and salesman alike when dealing with the ordinary rubber. (The Bull's Eye Rubber Co., 131 Harris avenue, Long Island City, New York.)

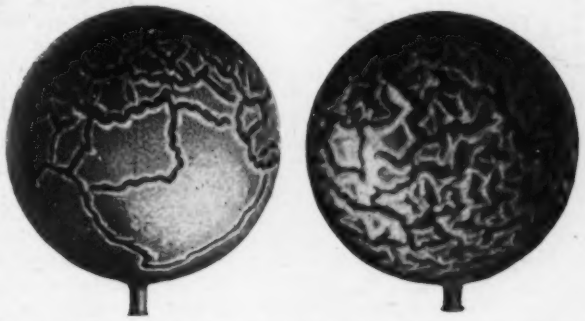
THE GOODYEAR CORD PATCH.

A simple and satisfactory method of repairing cord tires when damaged by inside breaks of all kinds and by injuries received from stone bruises, is here shown. It consists of the application of a simple patch built of several layers of cords, just as cord tires are built, with a heavy friction of gum between each layer of cords and the edges tapered to prevent tube chafing. This patch is applied to the inside of the tire like the ordinary patch. It is made in three sizes to fit cord tires from three to eight inches in width and adds many miles to the service of partly worn-out casings, since it can be used to reinforce permanently the weak spots resulting from injuries of different kinds, if it is properly applied. (The Goodyear Tire & Rubber Co., Akron, Ohio.)



NOVEL MOTTLED BALLOONS.

Toy balloons will never cease to exert their fascinating sway over the youngsters of succeeding generations, but each year brings forward new ideas in shape or coloring, to appeal to the love of children for color and novelty. The balloons shown here are mottled irregularly, one being lavender and white and the other, light-yellow and dark-brown. In the one case white rubber balloons on forms are dipped in lavender coloring, and in the other balloons of light-yellow rubber are dipped in dark-brown coloring. The portions of the surface which are highest take up more of the coloring matter, those most depressed remaining white. These balloons have a mouthpiece for inflating but no valve, as have some others, for retaining the air afterward. They are manufactured by The Globe Rubber Co., Cuyahoga Falls, Ohio. (Novelty Rubber Sales Co., Akron, Ohio.)

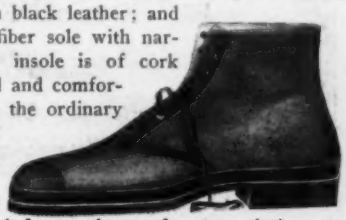


TELEPHONE STETHOSCOPE.

A new use has been found for the old-fashioned physician's stethoscope, in connection with the telephone. The stethoscope is attached to the receiver and when the tubes are placed in the ears of the listener, he is able to hear distinctly what is said over the telephone, regardless of noisy surroundings. The same idea can be applied to automobiles to locate engine trouble, loose bearings, etc. (Frederick B. Pinkus, La Crescenta, California.)

THE "WIN-THE-WAR" SERVICE SHOE.

The demand for leather to be made into shoes for our boys "over there" and those going, has brought about many ingenious models of shoes for civilian use, which employ other materials than leather for the principal parts. A new "Win-the-War" shoe has upper and vamp of strong brown duck; toe, eyelet fronts, and seams reinforced with black leather; and heavy brown rubber and fiber sole with narrow rubber foxing. The insole is of cork which makes the shoe cool and comfortable and does away with the ordinary objection to rubber-soled shoes. At the same time, the sole is soft and springy, relieving the jar of walking. The shoe is intended for workmen, farmers, clerks, etc. (The Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut.)



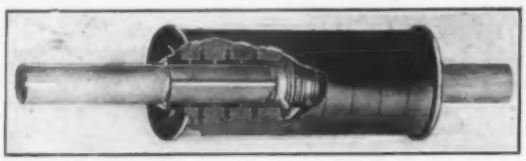
MORE RUBBER GOODS FOR SOLDIERS AND SAILORS.

The needs of the soldier and sailor have been further met by rubber cap-overs and a new rubber drinking cup which has a rubberized khaki case accompanying it. The covers are made of a lightweight fabric with the outer surface of smooth rubber. The one intended for the Army officer's cap is tan-color and has an opening on each side, closed with two snap fasteners, to permit easy adjustment. The Navy model is of double texture black cashmere, with a black rubber surface, and fastens in the back. Each of these models fits, respectively, the regulation Army and Navy caps and is a particularly useful adjunct to the equipment of the officer.

The rubber drinking cup is made of soft rubber fabric in the shape of a tumbler. When folded up and placed in its case, it occupies a space about two and one-half inches square. The cup itself is white and the case khaki-color. (Hodgman Rubber Co., Tuckahoe, New York.)

INTERLOCKING SECTIONAL RUBBER RING ROLL.

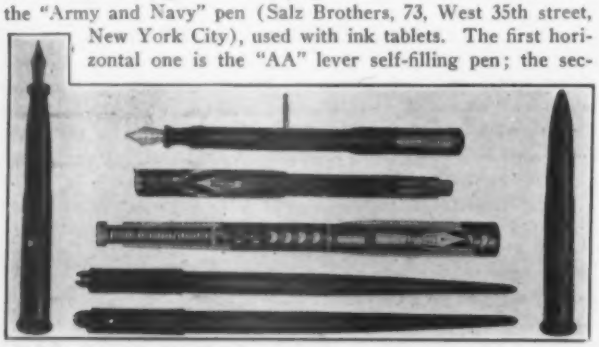
A serviceable rubber ring roll is illustrated below, intended to replace lapping on wool-scouring rolls. The use of this style of roll obviates the necessity for frequent stopping of



machinery to rewind, as no lapping is used. These rolls are guaranteed for a reasonable length of time. (The American Wringer Co., Providence, Rhode Island.)

PENS FROM THE MILITARY POINT AND OTHERS.

The group of pens shown here illustrates some of the ingenious devices offered to provide the boys of our Army and Navy with "inkless" nights. The upright models are two views of the "Army and Navy" pen (Salz Brothers, 73, West 35th street, New York City), used with ink tablets. The first horizontal one is the "AA" lever self-filling pen; the second is the "American Inkless War Pen" (Chester Novelty Co., Inc., Chester, New York) and carries a stick of solid ink which requires only to be dipped in water, milk, etc., to make it ready for writing; the third is the "Swan Military" (Mabie, Todd & Co., 15 Maiden Lane, New York City), also using ink tablets. The two penholders have new styles of rubber grips. (Miller Brothers, 309 Broadway, New York.).



CORSET STAY TIPS.

An unusual device is this for protecting the tips of the bones and steels of corsets. Made of heavy rubber, vulcanized to rubberized fabric by which it may be applied to either the top or bottom of stays, it prevents injury to either the corset material or the body of the wearer. It can be used for both repairing and replacement purposes and is equally adaptable for use on abdominal supporters and brassières. (Arthur Shorrock, North Adams, Massachusetts.)

A RUBBER-LINED TOBACCO POUCH.

A comprehensive development of the ordinary tobacco pouch includes separate pockets of just the right size to accommodate matches, cigarette papers, pipe, and tobacco. The pouch is lined with rubber and the inner bag for the tobacco draws up with a silk cord. A flap closes over the pockets containing the matches and pipe, fastened with ball and socket snap. (Mark Cross, 404 Fifth avenue, New York City.)

NEW USES FOR ORDINARY TOOLS.

An ingenious ruling-pen has been devised which furnishes its own flow of ink. An ordinary ruling pen is screwed into a fountain pen barrel and a small tube led from the barrel down into the pen, where the flow of ink is regulated by a screw. (Kenneth Bullock, Lapeer, Michigan.)

ELECTRICALLY HEATED AVIATOR'S SUIT.

The needs of our men who fly are constantly serving as the incentive to inventors to devise practical and useful articles for comfort and convenience. The garment illustrated is made, in one piece, of rubber cloth with fabric on both sides, through which connecting wires are run, terminating in the collar for connecting to an electrically heated helmet, in the sleeves to electrically heated gloves, and in the bottom of the trousers to electrically heated moccasins. (Simplex Electric Heating Co., 85 Sidney street, Cambridge, Massachusetts.)

AN ORDINARY WASHER OF RUBber will prove a great convenience to the artist or painter. It may be cut from tire fabric, even if nothing else is at hand, and will prevent paint from running back on the handle of the brush and soiling the hand.

The Editor's Book Table.

CRUDE RUBBER AND COMPOUNDING INGREDIENTS. A TEXT book of rubber manufacture. By Henry C. Pearson, F.R.G.S., Editor of THE INDIA RUBBER WORLD. Third edition. The India Rubber Publishing Co., New York, 1918. (Cloth, octavo, 422 pages with index. Price, $10.)

"CRUDE Rubber and Compounding Ingredients" has been for 20 years the acknowledged authority on rubber and its manufacture. The third edition has been revised and enlarged by the addition of chapters on accelerators, synthetic rubber, and vulcanization without sulphur. The chapters on chemical analysis and physical testing contain the latest authoritative methods. A particularly valuable new feature is the section giving many typical working compounds used in the several subdivisions of rubber manufacturing. These have both practical and suggestive value.

The volume will be found an efficient aid to rubber chemists, compounders, manufacturers, and to all students of rubber technology.

PACKING FOR EXPORT. SUGGESTIONS FOR PREPARATION OF American Merchandise for Shipment to Foreign Countries. Department of Commerce and Labor, Washington, District of Columbia. (Octavo, paper covers, 160 pages, illustrated.)

This pamphlet is a compilation of reports from American consular officers in various foreign countries, together with valuable data from other sources regarding the proper packing, marking and shipping of merchandise, added to which are consular regulations, fees charged, and other formalities required by foreign countries. The main portion of the book is devoted to the subject of packing materials and manufactured goods, each country of import being treated separately, the special requirements, where there are such, being stated. Among the general directions is noted that tires to be sent to or through the tropics should be specially marked, "Do not stow near boilers." Crude rubber to be sent abroad may be shipped in cases or bags, but if in the latter, the bags should be exceptionally strong. Rubber footwear should be securely packed and strapped to prevent pilfering *en route*. Many of the general articles apply well to the shipment of manufactured rubber goods.

A DIRECTORY OF TEXTILE BRANDS AND TRADE MARKS. Compiled by the "Textile World Journal." The Pragdon, Lord & Nagle Co., New York City. (Octavo, 485 pages. Price, $5.)

The mention of the great quantities of textile fabrics used in the rubber industry, and of the vast number of articles of one kind or another which are products of rubber factories and which have textiles for their basis, makes this book a valuable one for the rubber manufacturer's reference library.

The book contains a list of over 13,000 trade-marks and brand names of products of which cloth or fiber is the principal material. The list of trade-marks is given alphabetically, each material so trade-marked being briefly described. A supplementary or duplicate list follows, classifying these trade-marks according to the products, including belting, elastic webbing, hose, tire fabrics, coated fabrics, waterproof clothing and other lines of interest to rubber manufacturers. A brief article on "Valid Trade-Marks and Their Originations," by Henry C. Thomson, is also included in the volume.

FIGURING COSTS ON MATERIAL REPLACEMENT VALUES INstead of Purchase Price. By George E. Hall, general manager Boston Woven Hose & Rubber Co. (Pamphlet, 10 pages.)

The title of this small pamphlet is sufficiently comprehensive to describe the contents. Mr. Hall argues that it is not only foolish but unfair to competitors to sell goods or make contracts on the basis of cost of materials on hand, rather than on the market prices of those materials at the date of sale. He cites instances, gives concrete examples, and argues that unless the manufacturer bases his selling figures on this plan, he will lose when prices recede and stocks of material can be bought at far lower figures than were paid for goods on hand. He concludes by quoting an article on "Cooperation," originally published in the house organ of the company of which he is general manager.

POOR'S MANUAL OF INDUSTRIALS FOR 1918. COMPILED AND published by Poor's Manual Co., 80 Lafayette street, New York City. (Cloth, 2,736 pages, $10.)

The ninth annual number of this valuable reference book has recently been issued. The general information it contains has been revised to April, 1918, and includes the latest income accounts and balance sheets of all industrial companies of interest to the general public, chiefly in comparative form. The present income tax on industrial securities is also given—for the first time in a work of this kind. The investor or banker interested in industrial securities will find this information of value for ready reference.

PENANG CHAMBER OF COMMERCE REPORT FOR THE YEAR 1917. (Board cover, 96 pages, tables.)

The general progress of Penang in business, health, population, money, markets, and important legislation is briefly and lucidly set forth in this little book. Trade during the year was satisfactory, tin, rubber and tapioca, the staple products of Penang, having done exceedingly well. Freight charges increased at an unreasonable rate; in four months the rise was from $37.50 gold to $99 gold for rubber, while the difficulty of securing sufficient shipping space naturally affected business, and in the case of rubber resulted in large direct shipments to America. As, however, the entire local product could not be absorbed by the United States, there is a growing accumulation of stocks in go-downs and on estates.

Although money appears to have been plentiful during the past year, the continuance of a policy of caution is advised.

All German property, with the exception of private holdings, was sold, and resolutions passed regarding the treatment of Germans after the war.

THE AMERICAN SOLDIERS' AND SAILORS' DIARY, 1918. Compiled by Mary Parker Converse. E. P. Dutton & Co., New York City. (Cloth, 24mo., 60 cents.)

This little volume, printed on smooth white paper, bound in khaki-colored linen, provides the soldier and sailor with a thin, small, daily memorandum book which will fit into the breast pocket. At the top of each page is an inspiring quotation from the best sources of all times, including the Bible, appropriate to the present crisis. Beneath is space for writing—a full page for Sundays and one-third of a page for weekdays. Besides the diary proper are included the calendar for 1918-1919 and a table giving the equivalent values of foreign coins. Mary Parker Converse, the compiler, is the wife of Colonel Harry E. Converse, president of the Boston Rubber Shoe Co., Boston, Massachusetts. They have two sons in the Navy.

PERMEABILITY OF BALLOON FABRICS.

"Determination of Permeability of Balloon Fabrics," by Junius David Edwards, is soon to be issued as Technologic Paper No. 113 of the Bureau of Standards.

This work comprises 31 pages, contains many figures, charts and tables, and constitutes a comprehensive treatise on an important and timely subject. Theory, methods of test and apparatus are discussed at length. The effect of experimental conditions on apparent permeability are shown. The volume-loss method is given in comparison with the penetration method, followed by details of the standard test, operating directions and calculations.

NEW TRADE PUBLICATIONS.

THE J. P. DEVINE CO., BUFFALO, NEW YORK, HAS RECENTLY issued Bulletin No. 105-A, descriptive of equipment required for chemical, color and dyestuff industries, but which will interest rubber manufacturers as it also includes information concerning dry-vacuum pumps and chamber, rotary and drum types of vacuum dryers, the latter of the single- and double-drum types. The bulletin is gotten out in the uniformly handsome style of previous issues of this series.

* * *

THE BIGGS BOILER WORKS CO., AKRON, OHIO, IS SENDING OUT a new catalog of vulcanizers and devulcanizers. This presents pictures and full details of its vulcanizers for tires, inner tubes, retreads and insulated wire, and also of its rotary devulcanizer. Special importance is given its boltless, quick-closing vulcanizer door, which overcomes many objectionable features of the ordinary bolted door.

* * *

A NEW TRADE JOURNAL IS "THE DRUGGIST," HAILING FROM Memphis, Tennessee, and devoted to the interests of the retail druggists in the Southern and Southwestern States. It is a neat 80-page magazine, 7½ by 10½ inches, and the first issue, June, 1918, contains a number of articles appropriate to the business and a goodly proportion of advertisements.. A very full and complete price-list of drugs and proprietary medicines is a feature. Charles K. Trotter is managing editor and W. C. Paul is business manager.

* * *

"GARCO BRAKE LINING" IS THE NAME OF A HANDY LITTLE PAMphlet, 3½ by 6½ inches, issued by The General Asbestos & Rubber Co., Charleston, South Carolina, and punched through the upper lefthand corner, so that a hanger may be inserted. "Proper sizes to use for brake lining renewals on all cars" is the sub-title, and this gives an adequate idea of what the booklet contains—an alphabetical list of all makes and models of cars, to which is added the size of brake lining to be used, the number of pieces, and the type of brake on each car. The publication contains 21 pages, exclusive of advertising, and several blank pages for memoranda.

* * *

THE DECEMBER, 1917, ISSUE OF THE "ARCHIEF voor de Rubbercultuur in Nederlansch-Indië," copies of which may be obtained by addressing the Secretary-Editor, H. I. Hellendoorn, Buitenzorg, Java, is entirely devoted to a brief bibliography of rubber literature, compiled by Dr. A. A. L. Rutgers. The object of this work is to present to the practical man a means for quick and easy reference to subjects pertaining to the rubber industry from 1900 to 1916. With this end in view a classified index and an alphabetically arranged list of authors are given. The more important articles under each head of the index are printed in large type, while to each title in the alphabetical list is added a short résumé of the contents of the work mentioned.

The subjects named include cultivation, preparation, pests and diseases, rubber in various countries, addresses and reports. Publications concerning the rubber trade or rubber companies, articles not based on facts or figures, and many of the very technical papers and works on rubber chemistry are not mentioned.

* * *

THE NATIONAL INDUSTRIAL CONFERENCE BOARD, BOSTON, Massachusetts, has just published a 24-page pamphlet in which is contained much solid information regarding sickness among work people and its causes and prevention, as well as the law concerning compensation. Consideration is given to health insurance by government or corporate plans. It recommends the establishment of public health service, under authority of Congress, to take measures for the prevention of much of the present lack of health through removal of the causes, instruction of the classes, and inspection and supervision.

* * *

THE "JISN AND DYELO" IS A WEEKLY TRADE PAPER, IN THE Russian language, published by The Russian Popular Publishing Corp., New York City, with the purpose of assisting Russians to regain stability and of uniting the moderate elements on a sound national progressive platform. It aims to instruct the Russian reader in citizenship and duty; to show what is being done for the Russian immigrant and how he can best aid in reform, civic and welfare work; and to interest him in literature, art, commerce, etc., as well as local affairs, besides arousing in him the desire to secure betterment and happiness in an orderly fashion.

To help in achieving this aim, employers are requested to keep the publishers informed as to the number of Russians they employ and to supply their names, in return for which, aid is offered toward securing loyal workers.

* * *

THE FIRST ANNUAL REPORT OF THE COUNCIL OF NATIONAL Defense covering the history of the council from its inception to the close of the fiscal year, ended June 30, 1917, forms a remarkable story of patriotism, eloquent of the successful enlistment of the best thought and effort of American industrial and professional life for the efficient prosecution of the war. While the accomplishments of the various boards and committees in four months were indeed surprising, the reader is impressed chiefly by the thoroughgoing manner in which the various departments of the great task were studied and organized, and sound foundations were laid for quantity production, once the best design or method had been determined. With characteristic American resolution these practical men laid plans for a long war, but one which knows no outcome other than victory, and their highly specialized advice has been of inestimable value to the Government.

* * *

VOLUME I OF THE BRITISH EMPIRE SECTION OF THE INTERNAtional Series is a 64-page booklet entitled "The Resources of the Empire," by J. Watson Grice, D. Sc. In the chapter on raw materials the author points out the importance of the vast British plantation rubber industry of the eastern tropics and of maintaining the oversea supplies of crude rubber for war purposes. He also expresses gratification that "rubber, associated elsewhere in Africa and South America with horrors, has in the British Empire been among the instruments of civilization and humanity."

FEW STRIKES IN RUBBER MILLS.

The generally satisfactory wage and working conditions now existing in the American rubber industry are reflected in a research report on "Strikes in American Industry in Wartime," just issued by the National Industrial Conference Board, of which The Rubber Association of America, Inc., is a member. Statistics show that from April 6, 1917, to October 5, 1917, strikes occurred in only 9 plants and affected but eight-tenths of one per cent of the rubber mills of the country. A total of 2,199 employes, or eight-tenths of one per cent of all rubber operatives, was made idle for 10,804 days, or only two-tenths of one per cent of the aggregate number of workdays of rubber operatives. In two instances the demands were granted; in three, compromised; and in four, refused.

As compared with the clothing, lumber, textile, coal-mining, shipbuilding, and metal trades, in which from 5.1 to 32.4 per cent of the number of establishments was affected and from 5.9 to 19.6 per cent of workdays was lost, this showing of the rubber industry is very encouraging.

Report of the Tire and Rim Division of the S. A. E.[1]

PNEUMATIC TIRES AND RIMS.

PNEUMATIC TIRE SIZES—PASSENGER CARS AND COMMERCIAL VEHICLES.

THE War Service Committee of the Rubber Industry of the U. S. A. recommends that the production of sizes listed in the first four classes be discontinued on the dates given, and that only the sizes in the fifth (Class A) be produced after November, 1920.

Class E. The production of all sizes and types of tires not mentioned in any of the following four classes shall be discontinued at once.

Class D. List of tire sizes, production to be discontinued November, 1918.

Clincher (Non-Skid).	Straight Side.	
32x3½	30x3½ Non-skid	36x4½ Plain
33x4	35x4 Non-skid	37x4½ Non-skid
	29x4½ Non-skid	33x5 Plain

Q. D. Clincher (Non-Skid).

32x3½	33x4½
33x4	34x4½
32x4½	36x4½

Class C. List of sizes, production to be discontinued November, 1919.

Clincher.	Straight Side.	Q. D. Clincher (Non-Skid).
None	33x4½ Plain	35x4½
	36x4½ Non-skid	37x5

Class B. List of sizes, production to be discontinued November, 1920.

Clincher.	Q. D. Clincher.
30x3 Plain and Non-skid.	35x5 Non-skid.

Straight Side.

32x4 Plain and Non-skid	35x4½ Plain and Non-skid
34x4 Plain and Non-skid	33x5 Non-skid
32x4½ Plain and Non-skid	37x5 Non-skid
33x4½ Non-skid	

Class A. List of sizes to be continued in production after November, 1920. (Future S. A. E. standard.)

Clincher (Plain and Non-Skid).	Straight Side (Plain and Non-Skid).	
30x3½	32x3½	36x6
31x4	33x4	38x7
	34x4½	40x8
	35x5	

The foregoing recommendations have been approved by the War Service Committee of the Rubber Industry of the U. S. A.; the Tire and Rim Association, and the board of directors of the National Automobile Chamber of Commerce. The Tire and Rim Division of the Standards Committee recommends that the sizes in the Class A list be S. A. E. standard, this list to supersede the present[2] recommended practice.

The recommendation of the division, as presented in the accompanying table, includes inch dimensions for oversize tires and tire-seat diameters, together with the corresponding metric dimensions. It is recommended that manufacturers use as original equipment the nominal tire and rim sizes, thus permitting the use of the oversize equipment given.

PROPOSED STANDARD PNEUMATIC TIRES AND RIMS FOR PASSENGER CARS AND COMMERCIAL VEHICLES.

Nominal Tire and Rim Sizes.		Oversize Tire.		Tire-Seat Dia. (Rim.)		Type of Rim.
Inches.	Mm.	Inches.	Mm.	Inches.	Mm.	
30x3½	90/585	31x4	105/585	23	585	clincher
32x3½	90/635	33x4	105/635	25	635	straight side
33x4	105/635	34x4½	120/635	25	635	straight side
34x4½	120/635	35x5	135/635	25	635	straight side
36x6	150/610	38x7	175/610	24	610	straight side
38x7	175/610	40x8	200/610	24	610	straight side
40x8	200/610	.....	.....	24	610	straight side

NOTE.—In inch nomenclature, nominal tire diameter=tire seat diameter+twice tire cross-section diameter. Sizes are designated by giving outside diameter of tire and tire-section diameter as (30x3½).

In metric nomenclature, the nominal diameter=tire-seat diameter. Sizes are designated by giving tire cross-section diameter and tire-seat diameter. When spoken, the size is referred to as "90 for 585"; but is branded as 90/585.

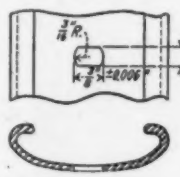
The adoption of this standard list of sizes cancels the present list[3] of tire sizes.

RIM SECTIONS AND CONTOURS, PNEUMATIC TIRES FOR PASSENGER CARS AND COMMERCIAL VEHICLES.—The rim and contour dimensions given in the following table and drawings are proposed for S. A. E. standard as applying to the tire sizes suggested for standardization. The thickness of straight-side rims is not specified because it depends upon the steel composition and hardness, which have not been standardized, but are required to conform to S. A. E. deflection and set test of rims. This dimension is left to the judgment of the rim manufacturers in present practice. (See paragraph on S. A. E. deflection and set test.)

VALVE-HOLE SIZE, AUTOMOBILE RIMS.—The division recommends that the valve hole in rims for the proposed standard tire sizes shall be 5/8-inch diameter up to 6-inch, rim inclusive. That this conforms with existing practice is shown by the following table:

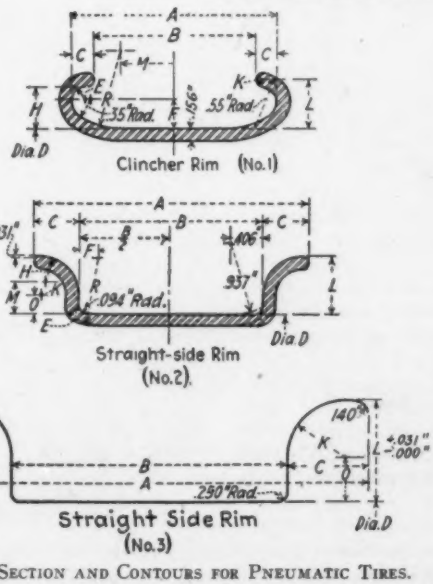
Present practice, valve-hole diameters	1/2	11/32	9/16	5/8	21/32	1/2x27/64
Manufacturers using each size...	1	2	4	5	2	1

VALVE-HOLE SIZE, MOTORCYCLE RIMS.—The valve hole in both the BB and CC types of motorcycle rims has been found to average 3/8 by 17/64 inches. This size has therefore been adopted for the United States military motorcycle. The division recommends that the dimensions and tolerances be as shown on the accompanying drawing for S. A. E. standard.



MOTORCYCLE VALVE HOLE.
The valve hole is located in the center of the rim and midway between two adjacent spoke holes.

CARRYING CAPACITIES, INFLATION PRESSURES, FOR AUTOMOBILE PNEUMATIC TIRES.—The present recommended carrying capacities and inflation pressures[4] apply to



RIM SECTION AND CONTOURS FOR PNEUMATIC TIRES.

[1] From the "Journal of the Society of Automotive Engineers," July, 1918.
[2] See S. A. E. Transactions, Vol. 10, Par. II, p. 9; "The Journal," Vol. II, p. 99, and S. A. E. Handbook, Vol. 1, sheet 8g.
[3] See S. A. E. Transactions, Vol. 10, Part 1, p. 9, "The Journal," Vol. II, p. 99; and S. A. E. Handbook, sh. 8g and 8o.
[4] See S. A. E. Transactions, Vol. 12, Par II, p. 69; and S. A. E. Handbook, Vol. I, sheet 8h.

PROPOSED STANDARD PNEUMATIC TIRE RIM SECTIONS AND CONTOURS FOR PASSENGER CARS AND COMMERCIAL VEHICLES.

Draw No.	Nominal Tire and Rim Size.	Rim Dia. (*D*).	Rim Circum.[6] (Tire Seat.)	Rim, Type.	*A*	*B* ±0.047	*C*	*R*	*E*	*F*	*H*	*K*	*L*	*M*	*O*
1	30x3½	23	72.257		2.600	2.050	0.275	0.910	0.1400	0.3400	0.50	0.0780	0.5780	0.680	.....
2	32x3½	25	78.540		3.432	2.312	0.560	0.840	0.1875	0.2500	0.32	0.5100	0.6870	0.367	0.1990
	33x4	25	78.540		3.888	2.688	0.600	0.840	0.1875	0.2500	0.34	0.5600	0.7800	0.440	0.2450
	34x4½	25	78.540		4.380	3.120	0.630	1.095	0.1875	0.3125	0.38	0.6150	0.8750	0.495	0.3030
3	36x6	24	75.398		6.330	4.330	1.000	.....	.....	.....	....	0.7187	1.2656	.....	0.5469
	38x7	24	75.398		7.000	5.000	1.000	.....	.....	.....	....	0.7187	1.2656	.....	0.5469
	40x8	24	75.398		8.500	6.000	1.250	.....	.....	.....	....	0.8750	1.5000	.....	0.6250

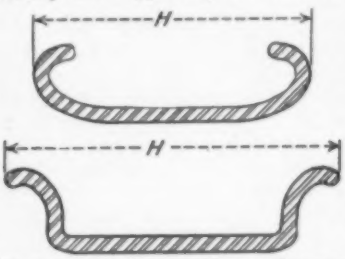
[6]Tolerance for rim circumference, ±0.047 in. All dimensions given in inches.

sizes from three to six inches inclusive. It is recommended that the following values for seven- and eight-inch tires be added to the present S. A. E. standard, the values being recommended by the Tire and Rim Association:

Size of Tire—In.	Size of Tire—Mm.	Maximum Load, Pounds.	Inflation Pressure, Pounds.
7	175	2,700	100
8	200	3,650	110

MOTORCYCLE TIRE CAPACITIES AND PRESSURES.—The division recommends that the carrying capacities and inflation pressures for motorcycle tires to be adopted by the Tire and Rim Association (probably on July 12, 1918) be adopted by the Society as S. A. E. standard.

S. A. E. DEFLECTION AND SET TEST OF RIMS FOR AUTOMOBILE PNEUMATIC TIRES.—The method of making this test[5] has previously been approved, but since the use of quick-detachable clincher rims is being discontinued the division recommends that the following obtain for S. A. E. standard:



SECTIONS FOR DEFLECTION AND SET-TEST RIMS.

The recommended S. A. E. deflection and set test of rims is a pressure test with predetermined deflection under predetermined pressure. The test is made with water pressure.

The measurements of deflection for either a clincher or a strait-side rim should be made across the extreme width, as shown by *H* on the accompanying illustration.

Deflection should be measured from a fixed inflation load of 25 pounds per square inch for 3 1/2-inch, four-inch, and 4 1/2-inch sections, and 50 pounds per square inch for six-inch sizes and larger, up to a predetermined maximum, as follows:

Rim Size, Nominal, Inches.	Pressure, Pounds.	Maximum Deflection, Inches.	Total Permanent Set, Inches.
3½	140	0.06	0.02
4	160	0.07	0.03
4½	180	0.10	0.06
6	200	0.15	0.06
7	200	0.15	0.06
8	Yet	to be	determined.

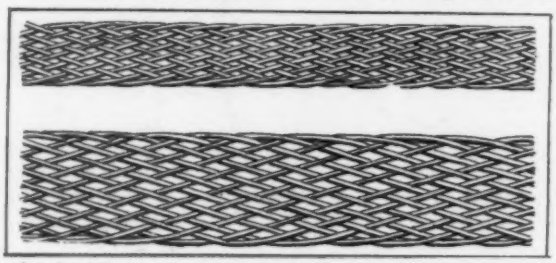
In conducting the tests, measurements of deflection should be made after load increments of 25 or 50 pounds as above are added; at a corresponding set the load should be released.

[5]See S. A. E. Transactions, Vol. 9, Part II, pp. 25-31 incl.; and S. A. E. Handbook, Vol. 1, sheet 8f.

(To be continued.)

BRAIDED TIRE-BEAD WIRE.

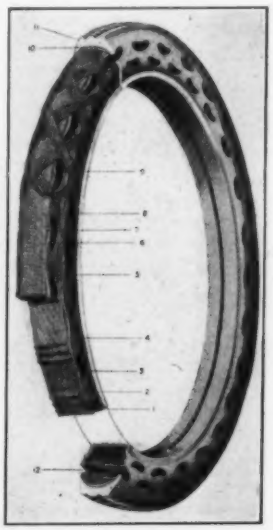
The use of plain or tinned-steel piano wire as a central metal core for automobile tire beads, was designed to guard against stretching of the bead in service as well as to contribute rigidity of structure. In the latest practice, flat braided ribbon of steel wire has been submitted for the single strand formerly used to form the bead center. As will be noted in the illustrations, the ribbon may be contracted and expanded to vary in width from a half to a full inch and it presents a rough surface and open mesh which firmly interlocks with the hard-rubber composition during the vulcanization of the bead under pressure. Three or four wraps of this braided steel band are used, according to the size of bead under construction. The grip, being embedded in



the hard-rubber stock, renders soldering of the outer ends unnecessary, and a much more reliable bead is obtainable. The braided wire now generally used is manufactured by the National-Standard Co., Niles, Michigan.

A NOVEL TIRE.

This is neither a solid, pneumatic nor a so-called cushion tire. It is a built-up tire of rubber, cords and cord-fabrics similar to those used in the construction of the best pneumatic tires. The fundamental principle underlying its construction is that of suspension, so employed as to utilize both the elastic and resilient properties of rubber. It is constructed in the following manner:



Elastic pillars *1* are arranged around a base and tightly bound in place by seven circumferential bands *2* and *4*. Around these bands is arranged an outer row of elastic pillars *5* staggered with relation to those of the inner series. Then these outer pillars are firmly bound on by six circumferential bands *6* and *8*.

Between the outer circumferential bands *6* and *8* are inserted fabrics *7* immediately over the staggered openings *12* of the outer row. Likewise, fabrics *3* are inserted between the inner circumferential bands *2* and *4* immediately over the openings of the inner row. These fabrics increase the resistance of the bands suspended from pillar to pillar by giving them additional tautness through their bridge-like construction.

The whole structure is bound together by interlaced cords *9* running spirally in series of five.

The breaker strip *10* is then placed on over a proper thickness of cushion rubber. Rubber for the side wall of the tire and the tread *11* is then placed on and the whole is vulcanized into a solid mass, save for the staggered openings *12* which pass entirely through the tire. (K. F. and C. Tire & Rubber Corp., Roanoke, Virginia.)

THE FIRST CUBAN SOLID TIRE.

The distinction of making the first solid tire in Cuba belongs to the Cuban Tire & Rubber Co., Havana, Cuba. The tire, as shown in the accompanying illustration, is a 34 by 4 and built on a quick-detachable rim under the personal supervision of W. F. Ridge, of the Rubber Engineering Co., Akron, Ohio, the consulting engineer for the Cuban company. The tire has seen active service on the roads of Cuba and is said to have given very satisfactory results. Heretofore this company has produced only tires of the pneumatic type.

Raoul Godoy is the Havana manager and W. S. Innes the New York representative with offices at 72 Trinity Place.

THE VALUE OF TIRE SERIAL NUMBERS.

Tire thefts are on the increase because of the high prices now ruling and the likelihood of no decline in costs until after the war.

Nine times out of ten the motorist who reports the theft of an automobile tire to the police is unable to tell its serial number. This number is the only positive means of identification for the authorities. Stating the brand of the casing, describing its appearance or telling of its mileage record is of little or no consequence.

SHOWING SERIAL NUMBER OF A GOODRICH TIRE.

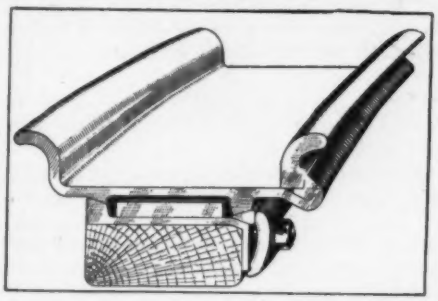
Most manufacturers place serial numbers on each tire. Through these numbers can be traced not only the material in the tire and when the tire was made, but on what machines, and what workmen handled it. It would be an easy matter for the thief to chisel off the serial number, but in so doing he would decrease the value of the tire 75 per cent, for adjustments are available only on tires with serial numbers.

In Chicago last year over $2,000,000 worth of tires were stolen and not recovered. The percentage of tires recovered would be swelled amazingly if automobilists would make a record of tire numbers. Hundreds of stolen cars would be reclaimed, also scores of automobile thieves apprehended.

Police officials in big cities state that the identification of one tire very often leads to the recovery of scores of others. Not only tires, but stolen automobiles as well, are recovered by tracing tire serial numbers.

FIRESTONE DEMOUNTABLE RIMS FOR GIANT PNEUMATIC TIRES.

The Firestone demountable rim was used on passenger automobiles as early as 1907. It has recently been adapted to trucks traveling long distances at high speed on pneumatic tires measuring six, seven, and eight inches in diameter.



The structural principle of this new rim, known as Type C, is a "wedged-on" continuous surface contact between rim and felloe by split-wedge ring in such manner that the rim can never be sprung out of a true circumferential or lateral alinement.

One of the advantages in the use of the larger pneumatic tires in truck service is the fact that should a mishap occur to the tires while on the road, they can quickly be changed if mounted on a demountable rim. The quick-change advantage in this rim is perhaps a more vital consideration in truck-tire service than in passenger-car service, since a passenger car may be run a short distance after deflation without apparent injury, while a large pneumatic truck tire under load cannot be run at all without suffering great damage.

THE EUROPEAN TYPE OF SOLID TIRES.

It is claimed that the semi-circular round shape, as adopted in European solid tire practice, has the following advantages over the American design: first, it is more resilient, due to its curved shape, and second, being much higher, the rubber thickness on the tread is greater. These combined qualities give a much longer road contact than afforded by the American type and consequently distributes the weight over more base area.

HOOD EUROPEAN TYPE DUAL SOLID TIRE.

Loads are equalized on dual tires of this type, due to the fact that on crowned roads the inside tire carries more of the load than the outside tire. With the low height of the American type, overloading on the inside tire is unavoidable, for the tire will not depress sufficiently to equalize the crown of the road because of the design. The European type, with its greater resiliency, will allow the inside tire to compress more and allow the outside tire to take up its share of the load.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(632.) An inquirer asks where he can obtain a machine for stripping treads from tires.

(633.) A reader requests the address of a reliable manufacturer making self-vulcanizing tube-patching material, to be furnished by the yard or pound in large quantities.

(634.) A request has been received for the address of a manufacturer of machinery for making rubber cement and filling tubes with it.

(635.) Information is requested concerning a process for coating the inside of a vulcanizer to prevent corrosion and waste due to the effect of sulphur fumes.

(636.) A reader asks for particulars about the process employed to obtain a roughened or crinkled surface on surgeons' rubber gloves.

(637.) An inquirer wishes to know the address of a rubber cement manufacturer whose shipping point and factory are near New York City and who can furnish large quantities in tubes three-quarters by four inches and larger.

(638.) A subscriber desires the address of a manufacturer of rubber hospital sheeting which will stand washing and ironing on the back.

(639.) A request is made for the address of a manufacturer of circular typewriter erasers.

(640.) A subscriber asks where he can obtain combination rubber and cork grease glass gaskets in barrel quantities.

(641.) A reader asks for the addresses of manufacturers of hard-rubber fountain-pen barrels.

(642.) A subscriber inquires as to where he can obtain brass-wire-inserted tubing in sections three-quarters of an inch in diameter and four feet long, with capped ends, the wire insertion to come as close to the inner surface as possible.

(643.) A subscriber wishes to know where he can purchase a face-mask inhaler for use in giving anesthetics in surgical operations, the device to have sponge-rubber face pad.

(644.) A correspondent requests the addresses of manufacturers of wooden and glass forms for making dipped goods.

(645.) An inquiry has been received for the addresses of concerns making rubber-ball machines.

(646.) A correspondent asks whether American tires 32 by 4 and 34 by 4 straight side are interchangeable with 815 by 105 and 875 by 105-millimeter tires.

(647.) A subscriber wishes information concerning molds for the manufacture of battery jars, including names of dealers or manufacturers.

(648.) A reader desires the addresses of manufacturers of impregnating machines.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or co-operative offices. Request for each should be on a separate sheet, and state number.

(27,154.) A man in France desires to secure an agency for the sale of miscellaneous goods, including rubber collars.

(27,183.) A company in Algeria wishes to purchase and secure an agency for the sale of fountain pens.

(27,190.) A company in New Zealand desires to secure an exclusive agency for the sale of all kinds of rubber goods, including tires.

(27,195.) An agency is desired by a firm in Australia for the sale of rubber goods.

(27,202.) The exclusive representatives in the United States of a commission merchant in Holland desire to receive samples, quotations, price lists and catalogs, for after-the-war trade, of elastic for different purposes, ready-made garters and suspenders, best quality rubber tires and tubes, for bicycles, factory requirements as beltings, packings, asbestos thread, talc, graphite.

ARMY AND NAVY AWARDS.

ARMY MEDICAL SUPPLIES.

THE following awards have been made by the surgeon general of the Army for furnishing miscellaneous supplies for the army medical department:

GAS MASK PARTS.—50,000 clarifying tubes, $7,125, Empire Tire & Rubber Co., Trenton, New Jersey; 680,000 linear yards two-inch "OD" twill-weave webbing, $57,800, Everlastik, Inc., New York City; 10,000 lineal yards rubberized under fabric, $60,000; 30,000 yards rubberized under fabric, $28,500, Plymouth Rubber Co., Canton, Massachusetts; 100,000 hard rubber castings, $35,250, 2,000,000 nose clip pads, $34,000, Mayflower Rubber Works Co., South Braintree, Massachusetts; 1,000,000 linear yards ⅞-inch black elastic tape, $92,500, American Mills Co., Waterbury, Connecticut; 100,000 linear yards ⅞-inch black elastic tape, Everlastik Inc., New York City; 400,000 mouthpieces, $37,000, United States Rubber Co., New York City; 50,000 linear yards rubberized face fabric, $38,000, British-American Manufacturing Co., Springdale, Connecticut.

STOPPERS.—30,000, pure gum, $1,431.82, Faultless Rubber Co., Ashland, Ohio.

SYRINGES.—4,000 fountain, $2,840, Whitall Tatum Co., New York City; 4,000 fountain, $3,200, Hodgman Rubber Co., Tuckahoe, New York.

GENERAL ENGINEER DEPOT AWARDS.

The following awards have been announced at the general engineer depot, United States Army, for furnishing miscellaneous supplies:

Hose.—1½-inch, $1.25 each, Grether Fire Equipment Co., Dayton, Ohio; $1.18 each, Boston Woven Hose & Rubber Co., Boston, Massachusetts.

Hose, rubber-lined cotton.—1½-inch, $0.39; 2½-inch, $0.595, Acme Rubber Manufacturing Co., Trenton, New Jersey; 2½-inch, $0.638, C. C. C. Fire Hose Co., Canton Junction, Massachusetts; 1½-inch, $0.36, Boston Woven Hose & Rubber Co., Boston, Massachusetts.

Hose, steam.—$0.545, The Goodyear Tire & Rubber Co., Akron, Ohio.

FIELD MEDICAL SUPPLY AWARDS.

The following awards have been made by the field medical supply depot, Washington, District of Columbia:

Catheters.—14,000, flexible, $0.59 each, The Miller Rubber Co., Akron, Ohio.

Hand atomizers.—1,200, $0.82 each, De Vilbis Manufacturing Co., Toledo, Ohio.

Hard rubber bottles.—40,000, $0.06 each, American Hard Rubber Co., New York City.

Hard-rubber ink wells.—5,500, $0.19 each, American Hard Rubber Co., New York City.

Rubber aprons.—8,000, $0.67 each, L. C. Chase & Co., Boston, Massachusetts.

Rubber bandages.—6,000, $0.44 each, Parker, Stearns & Co., Brooklyn, New York.

Rubber basins.—12,000, $0.50 each, United States Rubber Co., New York City.

Rubber stoppers.—100,000, $0.75 pound, F. A. Cigol Rubber Co., Paterson, New Jersey.

Stomach tubes.—800, $0.54 each, Tyer Rubber Co., Andover, Massachusetts.

Tourniquets and bandages.—4,000, $0.75 each, Parker, Stearns & Co., Brooklyn, New York; Tyer Rubber Co., Andover, Mass.

MEDICAL SUPPLIES, INDIAN SERVICE.

The following awards have been made for furnishing medical supplies for the Indian service during the fiscal year 1918:

Catheters.—700, soft, $0.07, The B. F. Goodrich Co., Akron, Ohio.

Hand atomizers.—460, $0.365, The Goodyear Tire & Rubber Co., Akron, Ohio.

Hard rubber syringes.—90, two-ounce, $0.57, The Goodyear Tire & Rubber Co., Akron, Ohio.

Stomach tube and bulb.—45, $0.70, The B. F. Goodrich Co., Akron, Ohio.

PANAMA CANAL AWARDS.

The following awards have been made for furnishing supplies for the Panama Canal:

Bicycle tires.—50, $97.50; 100, $185.00, Federal Rubber Co., Cudahy, Wisconsin.

Fire hose.—2,000 feet, $1,660; Boston Woven Hose & Rubber Co., Boston, Massachusetts.

Inner tubes.—120, $63.40, Pennsylvania Rubber Co., Jeannette, Pennsylvania.

Rubber belting.—200 feet, $206.00; United States Rubber Co., New York City.

Rubber suction hose.—100 feet, $138.00; The Goodyear Tire & Rubber Co., Akron, Ohio.

Rubber tubing.—100 feet, $152.50; New Jersey Car Spring & Rubber Co., Inc., Jersey City, New Jersey.

Tires.—24, $50.40; Pennsylvania Rubber Co., Jeannette, Pennsylvania.

JUDICIAL DECISIONS.

UNIVERSAL ROAD MACHINERY CO., *v.* VOORHEES RUBBER MANUFACTURING CO.—United States District Court for the Southern District of New York, June 24 and 25, 1916.

The Universal Road Machinery Co. bought from the Voorhees Rubber Manufacturing Co. 300 feet of fire hose at a cost of 22 cents per foot. Later, the purchasers had occasion to use several lengths of hose which then proved to leak around the couplings and were consequently sent back to the Voorhees company, who had the coupling reset and the hose returned to the road machinery company. When, shortly after this a fire broke out in the carpenter shop at plaintiff's plant, a length of hose was again used and found to have become uncoupled. Plaintiff claimed that because of this circumstance the loss sustained through the fire was chargeable to the defendant.

The judge found that the loss could not be charged to the Voorhees company, but that the plaintiff was entitled to damages amounting to the difference between the sum paid for the hose and the value of the hose in the condition in which it was offered as evidence.

The jury consequently brought in a verdict for the plaintiff for eleven dollars.

CUSTOMS APPRAISER'S DECISIONS.

CAUCHILLO GUM.—In a letter dated May 28, 1918, addressed to the Collector of Customs, New York City, the Treasury Department decided that crude Cauchillo gum was classifiable under paragraph 36, Tariff Act of 1913, as crude chicle either directly, or by virtue of the similitude clause of paragraph 386. This is dutiable at 15 cents per pound. (Treasury Decisions, Vol. 34, No. 23, June 6, 1918.)

JELUTONG.—Jelutong, classified under paragraph 385, Tariff Act of 1913, was held free of duty under paragraph 513 as crude india rubber, on the protest of Thomas & Pierson. (Treasury Decisions, Vol. 34, No. 25, June 20, 1918.)

JELUTONG—CITATION OF PREVIOUS DECISION.—Merchandise invoiced as jelutong and classified as a non-enumerated unmanufactured article under paragraph 385, Tariff Act of 1913, was claimed entitled to free entry as crude rubber under paragraph 513. Opinion by Hay, G. A. G. A. 8081 (Treasury Decisions 37284) and Abstract 41775 were cited by protestants, the Rubber & Guayule Agency, and the protests were submitted without testimony. Held insufficient to establish the identity of the merchandise. Protests overruled. Abstract 38024 followed. (Treasury Decisions, Vol. 34, No. 25, June 20, 1918.)

ELASTIC BRAIDS.—Silk elastic braids and cotton elastic braids classified at 60 per cent ad valorem under paragraph 358, tariff act of 1913, were claimed dutiable under paragraph 316 or 262 by Mandel Brothers, Chicago, Illinois. From the record it was found the braids in question were properly classified under paragraph 358. (Treasury Decisions, Volume 35, No. 3, July 18, 1918.)

THE HEARING OF THE GUTTA SIAK PROTESTS.

On June 17 and 20 the Board of United States General Appraisers heard the protests of L. Littlejohn & Co., claiming that gutta siak was entitled to importation free of duty as crude gutta percha. The collector of customs at New York had collected duty on a number of importations of this material as a manufactured article. The case for the importers was presented by Edward P. Sharretts of Sharretts, Coe & Hillis; and, on behalf of the Government, Assistant Attorney General Bert Hanson and Special Attorney John J. Mulvaney appeared.

Ten witnesses were called, among them William E. Bruyn, treasurer, L. Littlejohn & Co., New York City; William L. Costilo, buyer, Plymouth Rubber Co., Canton, Massachusetts; W. Boardman Reed, treasurer, Bishop Gutta Percha Co., New York City; Roger S. Hardy, salesman, J. T. Johnstone & Co., New York City; James Meade, Meade Rubber Co., Stoughton, Massachusetts; James E. Odell, rubber broker, New York City; Frederick J. Gleason, general manager, Panther Rubber Manufacturing Co., Stoughton, Massachusetts; George L. Peters, president, Peters Manufacturing Co., New York City; R. T. Elwell, superintendent, Haywood Rubber Co., Buffalo, New York; Frederick J. Maywald, rubber chemist, New York City, and Wallace L. Goff, rubber broker, New York City.

Seventeen exhibits were introduced in evidence which included all the known varieties of gutta percha imported into this country. Mr. Sharretts devoted most of his efforts to proving that gutta siak was a well known variety of gutta percha prior to the passage of the Underwood Act of 1913. Most of the witnesses testified as to the principal uses to which gutta siak is devoted, among which are included the manufacture of gem duck for backing inner soles of shoes, its use in place of raw silk wrappings in hospitals, and as a cement for various kinds of backing cloths, eyeglass cases, hospital sheeting, rubber heels, rubber hose, gutta percha tissue and adhesive backing cloths.

An interesting account of the manner in which siak is produced was given by Roger Hardy who had spent some time on the island of Borneo from which a great deal of the material is exported. He said that the natives in going through the forests do not discriminate in the trees which they fell and that they mix the latex of various gutta percha and rubber trees in the forest. After the latex is gathered by them it is coagulated by a process of boiling and then brought to a central depot that is in charge of the Chinese. It is there graded and shipped to Singapore which is the principal shipping point for the United States trade. In Singapore it is again graded and reboiled by some process known only to the Chinese traders who are in absolute control of the trade. After this reboiling it is shipped out. The case has been submitted to the board but decision was reserved.

A country worth fighting for is a country worth saving for. Buy Thrift Stamps.

The Obituary Record.

SALES MANAGER AND DIRECTOR OF RUBBER COMPANY.

ALBERT DUNLAP ROGERS, sales manager and director, of The Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio, with which he had been connected ever since its organization in 1905, left Cincinnati on the night of April 22, 1918, for a trip south, but, becoming ill on the train, was forced to leave it at Nashville, Tennessee, where he suddenly passed away the following morning at ten o'clock.

ALBERT DUNLAP ROGERS.

Mr. Rogers was forty-two years of age, and was well-known to the rubber trade, particularly in the South and Southwest, to which territory he had given special attention. For seven years he represented The Simmons Hardware Co., St. Louis, Missouri, in the West and South, and for five years was the southern representative of The Whitman & Barnes Manufacturing Co. In 1905, the Cincinnati Rubber Manufacturing Co. acquired the rubber plant at Akron, Ohio, previously owned by the Whitman & Barnes company, and about that time Mr. Rogers severed his connection with the latter concern to go with the Cincinnati one.

Mr. Rogers was a son of the late Judge John H. Rogers of Fort Smith, Arkansas. He is survived by his widow and three children—two sons and a daughter—and by three brothers and one sister—John H. Rogers and R. P. Rogers, Kansas City, Missouri; D. G. Rogers, and Mrs. R. M. Johnston, Fort Smith, Arkansas.

FORMERLY A RUBBER SALESMAN.

J. Warren Jones, formerly a traveling salesman in the employ of the Home Rubber Co., was one of the many men to be blown to pieces at the ammunition plant of the Semet-Solvay Co., near Syracuse, New York, recently. His body could not be found after the explosion, the only thing left for identification being the case containing his photograph. Jones traveled for the Home Rubber Co. for several years, and gave up the position to open a laundry near Syracuse. He sold his laundry and went to work at the ammunition plant. He is survived by his widow and one son, Ralph W. Jones, a member of the Aviation Corps, stationed at Camp Green, South Carolina. The deceased was 37 years old.

RESPECTED IN COMMERCIAL AND LEGAL CIRCLES.

John Ellsworth, president of the Coast Manufacturing & Supply Company, Livermore, California, passed away April 18, 1918. Mr. Ellsworth had been head of the company during the past three years, succeeding the late Albert H. Merritt. Before taking the presidency Mr. Ellsworth was Superior Judge of Alameda County, California, for 24 years.

Mr. Ellsworth was born in East Windsor, Connecticut, in 1842, and was a descendant of one of the old and prominent New England families. He studied at Phillips Academy, Andover, Massachusetts, and enlisted in the Twenty-fifth Connecticut Regiment at the outbreak of the Civil War. After the war he again entered Phillips Academy and prepared himself for the study of law. He studied one year at Williams College, and two years in a law office in Hartford, Connecticut. In 1867 he was admitted to the bar and in the same year started for California, joining his brother, the late Lemuel Stoughton Ellsworth, who was at that time establishing the first fuse factory on the Pacific Coast.

John Ellsworth was one of the most respected men in Alameda County and his demise is keenly felt in commercial and legal circles.

WIDELY KNOWN FOOTWEAR SALESMAN.

John Herbert Davis, of the sales department of the Hood Rubber Co., Watertown, Massachusetts, died at his residence in Bradford, Massachusetts, July 8, aged 55 years. He was born in Brooklyn, New York, October 9, 1862, but in 1869 his parents removed to Lynn, Massachusetts, where he received his education and entered the shoe business. In 1882 he moved to Bradford, and has occupied the ancestral home the greater part of the time since that date. He became an able and popular salesman, and was connected mainly with houses selling to shoe manufacturers or to shoe dealers. About two years ago he entered the sales department of the Hood Rubber Co., representing that company in the Middle West. He was a member of the First Baptist Church, at one time was superintendent of its Bible school, and later taught a large class of young men there. He was fond of literature, a wide reader, and an earnest talker, with a rare fund of anecdote and humor. He is survived by his widow, three sons and two brothers.

WELL-KNOWN AMONG TESTING ENGINEERS.

Dr. Edgar Marburg, secretary and treasurer of the American Society for Testing Materials, died June 27, at the University Hospital, Philadelphia, Pennsylvania, after a prolonged illness. Dr. Marburg was 54 years old last March. He graduated from Rensselaer Polytechnic Institute, Troy, New York, in 1885, and after seven years with the Carnegie Steel Co. at Pittsburgh, and with several bridge companies, he became professor of civil engineering at the University of Pennsylvania, holding that position until the time of his death. As secretary and treasurer of the American Society for Testing Materials he had a nation-wide acquaintance with the investigators in many lives of industrial endeavor, and it was largely through his efficient work that the society's activities were broadened from investigations in iron and steel to include the rubber, textile and other industries. He was a careful investigator, an efficient engineer, an excellent teacher, and sincere, courageous, and loyal in all he undertook.

CONVENTIONS, EXPOSITIONS, ETC.

September 2-7.—Indianapolis, Indiana. Automobile show in conjunction with Indiana State Fair, auspices Indianapolis Automobile Trade Association; John Orman, manager.

September 9-October 6.—Oakland, California. Pacific Coast Land and Industrial Exposition, Civic Auditorium.

September 14-21.—Chicago, Illinois. National Truck, Tractor and Accessory Show, auspices Automotive and Accessories Exposition, Inc. Municipal Pier; H. V. Buelow, manager.

September 23-28.—New York City. Fourth exposition of Chemical Industries, Grand Central Palace.

The Rubber Association of America, Inc.

THE letter that follows is the result of the conferences held last month in Washington, D. C., between the War Trade Board, the War Industries Board, the War Shipping Board, and the War Service Committee of the Rubber Industry of the U. S. A.:

WAR INDUSTRIES BOARD.
WASHINGTON, DISTRICT OF COLUMBIA.

July 26, 1918.

To Mr. Bertram G. Work, Chairman,
War Service Committee,
The B. F. Goodrich Co.,
1780 Broadway, New York City.

My dear Mr. Work:

Your industry should understand that the need of conserving and July on the plan of allocation of crude rubber under a limited tonnage arrangement with the War Trade Board, and as additional information is necessary before finally determining upon the allocation for August, September and October (which information you are now compiling), it has been determined that for the months of August and September, substantially the same arrangements and percentage of allocation will continue.

Your industry should understand that the need of conserving shipping space is as great as, or perhaps greater than when this matter was first taken up last April. We understand that while approximately 25,000 tons were licensed for import during the months of May, June and July (although considerably more than this has been received), approximately 50,000 tons will have been consumed by the industry. It is obvious that something radical must be done at once to curtail the consumption of rubber and we feel sure we may rely upon the support of the industry in taking such immediate steps as may be necessary to conserve the present stocks of rubber now in the country and those due to arrive.

The government departments are making every effort to determine requirements of crude rubber for essential war and business purposes, and as soon as this information is at hand, steps will be taken to insure the import of sufficient rubber to meet those requirements.

As a means of conserving the stocks of crude rubber now in the country, your committee has suggested curtailment of the production of pneumatic automobile tires and tubes during the months of August and September, and we request you—

(a) To pledge the manufacturers of pneumatic tires and tubes to restrict the production in tonnage of rubber consumed and in numbers of casings and tubes to the extent of 50 per cent of the production for the corresponding months of August and September of last year.

But in no event shall the manufacture of pneumatic casings and/or tubes during the month of August. 1918. and the month of September, 1918, exceed 50 per cent of the *monthly average* for the year 1917, both as to amount of rubber used and number of pieces produced.

This restriction is exclusive of government business.

(b) That you carefully consider restricting the manufacture of all other articles involving the use of rubber, as every possible saving should be made.

You are thoroughly familiar with the industry to which we look, patriotically and conscientiously to cut out the consumption of crude rubber at every point where it can be done without injury to the nation's welfare.

A curtailment such as mentioned above, in the production of pneumatic tires and tubes and other articles, will not accomplish the desired results unless some plan is evolved for limiting and regulating the use of motor vehicles, and we expect the use of rubber tires will be restricted except for actual war and essential business purposes. We are not at liberty at this time to announce our plans for accomplishing this purpose, but will do so in the near future.

Every necessary step should be taken to discourage and prevent hoarding of the finished product by manufacturers, wholesalers, dealers and consumers, and we ask you—

(a) To evolve some plan, and put it into effect, which will accomplish this end, and to see to it that, if any one of these factors are guilty of hoarding, steps be taken to prevent their securing additional supplies:

(b) That advances in prices be prevented.

We look to you to see that this is accomplished.

Before arrangements are concluded for the importation of rubber after the month of September, with your co-operation we expect to evolve definite plans which will accomplish the purpose we are after: i. e., the conservation of every foot of shipping space possible by the conservation and restriction of the use of rubber.

We ask that you facilitate your final arrangement for co-operation with the Conservation Division in making such changes in the manufacture and distribution of your product as will result in the conservation of rubber during the period of the war.

We anticipate your complete cooperation in all of the above matters and assure you of our desire to see that the industry is provided with the necessary raw materials to take care of the war and essential civilian needs as soon as that can be determined, and give you our further assurance that we desire to curtail the industry only in so far as it may become necessary to meet the war needs.

We understand that there will be a general meeting of the industry at an early date, at which time you will have an opportunity to lay all of these facts before the manufacturers.

Yours very truly,
WAR INDUSTRIES BOARD,
GEORGE N. PECK,
Commissioner of Finished Products.

CRUDE RUBBER STOCKS OF JUNE 30, 1918.

By direction of the War Trade Board, statistics of crude rubber stocks as of June 30, 1918, were collected from the rubber trade in the United States by The Rubber Association of America, as per the questionnaire sent out at the time to both importers and manufacturers. We are now authorized by the War Trade Board to make these figures public.

Replies were received from 192 out of 194 importers, who reported the following tonnage:

Importers.	In Stores.	On the Docks and in Transit Overland in the United States.	for American Ports.	Total.
Crude rubber .....*tons*	7,119.4	12,230.3	11,314.2	30,663.9
Gutta jelutong	289.0	298.0	627.0	1,224.0
Gutta percha	3.6	58.5	169.0	231.1
Balata	109.1	13.5	32.7	155.3
Gutta siak	16.2	122.5	155.0	293.7
Totals .....*tons*	7,547.3	12,722.8	12,297.9	32,568.0

Replies were received from 512 out of 529 manufacturers, who reported the following tonnage:

Manufacturers.	In Stock at Factory.	In Transit Within United States Invoiced by Seller.	In Transit Imported by Mfrs. Direct.	Total.
Crude rubber .....*tons*	26,540.5	11,484.3	9,403.8	47,428.6
Gutta jelutong	1,994.9	75.4	17.0	2,087.3
Gutta percha	111.1	2.7	.....	113.8
Balata	161.2	35.1	.....	196.3
Gutta siak	520.8	96.0	.....	616.8
Totals .....*tons*	29,328.5	11,693.5	9,420.8	50,442.8

The total tonnage for manufacturers and importers as of June 30, 1918, was as follows:

	In Stores and in Stock.	In Transit and Afloat.	Totals.
Crude rubber .....*tons*	33,659.9	44,432.6	78,092.5
Gutta jelutong	2,293.9	1,017.4	3,311.3
Gutta percha	114.7	230.2	344.9
Balata	270.3	81.3	351.6
Gutta siak	537.0	373.5	910.5
Totals .....*tons*	36,875.8	46,135.0	83,010.8

COMMUNICATIONS FROM THE COMMITTEE ON RUBBER AND KINDRED PRODUCTS.

On July 1, questionnaire No. 5 was sent to rubber manufacturers, requesting information concerning the amount of crude rubber consumed in the manufacture of goods for all governmental purposes (including railroads and Red Cross), between January 1 and July 1, 1918; also a statement of the amount of

crude rubber which will be required to complete unfilled government contracts on hand July 1, 1918, the questionnaire containing this information to be sent promptly to Irving B. Ferguson, C. P. A., 61 Broadway, New York City.

PRICES FIXED ON AFRICAN AND EAST INDIAN GRADES.

The rubber trade was advised on July 2 that the following supplemental list of valuations had been approved by the War Trade Board on the grades of rubber mentioned below:

	Per Pound.
AFRICANS.	
Accra (Gold Coast) lumps	$0.28
Lagos lumps	.28
Lump flake	.28
Conakry niggers	.55
Prime Mozambique ball	.52
Sierra Leone niggers	.50
Hausa ball	.35
Hausa cake	.35
Cameroon ball and similar grades	.35
Gambia niggers	.45
Prime Madagascar qualities. Basis of 35 per cent shrinkage	.35
Madagascar niggers. Basis of 45 per cent shrinkage	.29
ASSAM AND RAMBONG.	
Prime crêpes	.60
Good quality crêpes	.58
Assam onions	.54

All of the above valuations are c. i. f. New York.

Attention is called to the fact that the Government shall have an option at the aforesaid prices to the same extent as already given on the grades of which the maximum price has previously been established.

PRICES FIXED ON OTHER BRAZILIAN SORTS.

On July 6 the rubber trade was notified that the following supplemental list of valuations had also been approved by the War Trade Board on the grades of rubber mentioned below:

	Per Pound.
FINE PARA.	
Peruvian	$0.67
Cut Angostura	.64
MEDIUM PARA.	
Peruvian	.62
Cut Angostura	.58
Coarse-medium	.45
COARSE PARA.	
Peruvian	.37
Mollendo	.37
Rio Negro coarse	.38
Rio Negro strings	.35
Nugget coarse	.46
Angostura	.37
Tapajos	.38
Xingu	.38
Ceara coarse (Negroheads)	.38
MISCELLANEOUS.	
Ceara scrap 1	.37
Pernambuco sheet	.35
Mangabeira sheet	.35
Upper caucho slab	.33

All of the above valuations are c. i. f. New York.

Attention is directed to the fact that the Government shall have an option at the aforesaid prices to the same extent as already given on the grades of which the maximum price has previously been established.

GOVERNMENT-CONTROLLED EXPRESS COMPANIES.

All rubber manufacturers were advised on July 13 that government-controlled express companies shall be considered as other departments of the Government. Therefore, rubber used on contracts for these companies is subject to replacement without regard to allocation. This ruling was effective July 1, 1918.

COMMUNICATIONS FROM THE RUBBER ASSOCIATION OF AMERICA, INC.

The following letter, dated July 15, was sent to rubber manufacturers, importers and dealers:

In order to deal with the situation that has arisen in connection with the new Government regulations requiring allocation certificates as a condition under which a license for the importation of crude rubber is granted, the association, with the approval of our general counsel, has made the following addition to "The Rules and Regulations Governing Transactions Between Buyers and Sellers of Crude Rubber," which governs contracts made subject to the rules of The Rubber Association of America:

22. Contracts for rubber sold for arrival and/or delivery in New York during May, 1918, from Central and South American or European ports, May, 1918, arrival and/or delivery of Plantation grades at Pacific Coast and July, 1918, arrival and/or delivery of Plantation grades in New York, which rubber is free of allocation by the War Trade Board, shall, if defaulted, be liquidated at the maximum prices as prescribed by the War Trade Board.

With reference to rubber requiring War Trade Board allocation certificates for May, June and July, 1918, shipments, if the buyer does not, within 15 days after the date of publication of the government regulations as to shipments in next following period, furnish allocation certificates to cover the rubber contracted for, the contract is to be liquidated at the then prevailing c. i. f. New York prices for prompt shipment from the primary market stipulation in the contract. Contracts for arrival shall be treated like shipment contracts, but settlement prices shall be advanced two cents over the price fixed for shipment contracts.

The same principle shall also be applied to contracts for arrival and/or delivery in government restrictive periods subsequent to July, 1918.

All controversies in connection herewith shall be settled by arbitration, as provided in Rule 21.

MEANS OF RAISING FURTHER WAR REVENUE.

The following letter and ballot was sent to firm members on July 23:

By direction of the Board of Directors, we are enclosing herewith a copy of Referendum No. 25 on the Report of the Special Committee on Financing War, issued by the Chamber of Commerce of the United States of America.

Consideration of means of raising further revenue to meet growing expenditures for war purposes has now become necessary. The Treasury Department and committees of Congress are studying the present laws and deliberating regarding new taxes. It is therefore of immediate importance that an expression of the opinion of the best business minds of the country be obtained regarding this highly pertinent subject.

On the enclosed ballot, we would ask that you register your opinion with regard to the several questions asked, and return to the secretary not later than August 23, 1918.

BALLOT.

Referendum No. 25 of the Chamber of Commerce of the United States of America.

To the Secretary of the Rubber Association of America, Inc.,
17 Battery Place, New York City.

Dear Sir:

We desire to record our vote on the proposal of the Chamber of Commerce of the United States of America as noted below:

I. The committee recommends that exemptions allowed before war taxes are imposed should be adequate for the safe conduct of business enterprises and that power to make adjustments that will prevent inequities should be given to the administrative authority under the tax law.

In favor.
Opposed.

II. The committee recommends that liberal provisions for amortization of plant used upon war work should be made, with opportunity for subsequent readjustment to correct errors.

In favor.
Opposed.

III. The committee recommends that there should be a limited number of regional boards of review, appointed by the administrative authority, and making recommendations upon appeals from preliminary assessments.

In favor.
Opposed.

IV. The committee recommends that there should be equalization of federal taxes.

In favor.
Opposed.

V. The committee recommends that in computing taxable income corporations should be allowed to make two deductions (interest and charitable gifts) which they are now denied.

In favor.
Opposed.

VI. The committee, on condition that proper exemptions and opportunities for adjustment are allowed, recommends that a war-profits tax should be imposed at a high rate, and should be levied when it would exceed the excess-profits tax.

In favor.
Opposed.

VII. The committee recommends that, upon the present general basis but with inequalities removed, the excess-profits tax should be increased.

In favor.
Opposed.

VIII. The committee recommends that rates of income taxes should be increased and unearned incomes should be taxed at least as much as earned.

In favor.
Opposed.

IX. The committee recommends heavy taxes upon a few articles of widespread consumption.

In favor.
Opposed.

X. The committee recommends heavy taxes upon a selected list of war luxuries.

In favor.
Opposed.

XI. The committee recommends heavy taxes upon a selected list of war extravagances.

In favor.
Opposed.

Attest:

.....,
Signature of Firm Representative.

RUBBER ASSOCIATION EXECUTIVE COMMITTEE MEETINGS.

At the meeting held May 23, the following firm and associate members were elected:

FIRM MEMBERS AND REPRESENTATIVES.

Boston Blacking Co., J. R. Stuart, East Cambridge, Massachusetts.

Mercer Rubber Co., J. Ely Reed, Hamilton square, New Jersey.

Ryan Ideal Stain & Blacking Co., A. J. McCormick, Lynn, Massachusetts.

Sprague Tire & Rubber Co., E. H. Sprague, Omaha, Nebraska.

Turner, Halsey Co., Harold M. Turner, 62 Leonard street, New York.

ASSOCIATE MEMBERS.

E. S. Andrews, Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut.

C. A. Brown, Kelly-Springfield Tire Co., 200 West 57th street, New York.

Richard L. Fisher, Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut.

Edgar B. Fraser, Boston Yarn Co., 60 Federal street, Boston, Massachusetts.

W. H. Herbold, United & Globe Rubber Manufacturing Cos., Trenton, New Jersey.

Maurice Switzer, Kelly-Springfield Tire Co., 200 West 57th street, New York.

A. G. Watt, E. M. & F. Waldo, 11 Broadway, New York.

The meeting of June 27 was held at the Yale Club, New York City, Messrs. Work, Dunn, Kelly, Litchfield and secretary Vorhis being present. The resignation of W. Stuart Hotchkiss as director and first vice-president of The Rubber Association of America, Inc., as a member of the Executive Committee, and of the Committee on Rubber and Kindred Products, was accepted, as military duties of Major Hotchkiss require his presence abroad. Harry T. Dunn, second vice-president, was elected first vice-president, succeeding Mr. Hotchkiss, and Homer E. Sawyer was elected second vice-president, to succeed Mr. Dunn, being made also a director of the Rubber Association and a member of the Executive Committee and of the Committee on Rubber and Kindred Products, succeeding Mr. Hotchkiss.

It was voted to establish a traffic division of The Rubber Association of America, Inc., and a committee was appointed to effect the organization.

The following were elected firm and associate members of The Rubber Association of America, Inc.:

FIRM MEMBERS AND REPRESENTATIVES.

The Carborundum Co., Charles Knupfer, Niagara Falls, New York.

Carlisle Cord Tire Co., Inc., F. B. Carlisle, Andover, Massachusetts.

Doss Rubber & Tube Co., Dr. N. C. Doss, Candler Building, Atlanta, Georgia.

Ehman Tire & Rubber Co., A. C. Ehman, La Salle and 27th streets, Chicago, Illinois.

Goodall Rubber Co., Inc., H. W. Goodall, 11th and Race streets, Philadelphia, Pa.

Hartmann Brothers, Inc., William Fox, 11 Broadway, New York City.

G. H. Hutchins & Co., Inc., G. Howard Hutchins, 233 Broadway, New York.

Kemsley, Millbourn & Co., Ltd., Adam Sulima, 30 Pine street, New York.

Massillon Rubber Co., J. G. Lester, Massillon, Ohio.

O'Bannon Corp., William B. Simpson, 30 State street, Boston, Massachusetts.

Portland Rubber Mills, H. C. Huntington, Portland, Oregon.

Hazard Manufacturing Co., George B. North, Wilkes-Barre, Pennsylvania.

ASSOCIATE MEMBERS.

E. M. Caldwell, Davol Rubber Co., Providence, Rhode Island.

George B. Clarke, United States Rubber Co., Mechanical Goods Division, Providence, Rhode Island.

C. E. Little, Beacon Falls, Rubber Shoe Co., College Point, Long Island, New York.

Alfred W. Swartz, Goodall Rubber Co., Inc., 11th and Race streets, Philadelphia, Pennsylvania.

W. D. Wisell, Kelly-Springfield Tire Co., 200 West 57th street, New York City.

BOARD OF DIRECTORS MEETING.

At the meeting of July 11, Messrs. Work, Dunn, Lowman, Lambert, Sawyer, Kelly, Davol, Wilson, attorney Neave, secretary Vorhis, and former presidents Firestone and Hodgman were present. The resignation of William E. Bruyn as director and member of the Arbitration Committee and of the Committee on Rubber and Kindred Products was accepted, Mr. Bruyn having been appointed commercial advisor to C. M. Woolley of the War Trade Board at Washington, District of Columbia. George A. Ludington, The Fisk Rubber Co., New York City, was appointed to serve on the Arbitration Committee to succeed C. B. McKay, resigned.

It was voted that an outing or golf tournament be planned to take place early in the fall and W. J. Kelly was appointed chairman *pro tem.* of the Outing Committee in the absence of F. R. Henderson.

RECLAIMERS' DIVISION MEETING.

The Reclaimers' Division of The Rubber Association of America, Inc., held a meeting on July 12 at the Point Shirley Club, Winthrop, Massachusetts, where they were the guests of the members of the division in Boston and vicinity, namely: Boston Woven Hose & Rubber Co.; F. H. Appleton & Son, Inc.; E. H. Clapp Rubber Co., and Hood Rubber Co. The meeting was the largest in point of attendance since the division was formed, twenty reclaimers being present. Captain F. H. Appleton, chairman of the division, presided. Many matters of importance were discussed. The most important action was the choice of a committee which was instructed to prepare a questionnaire in order that a complete survey and census of the reclaiming industry may be obtained, in order that the reclaimers may be in a position to be of maximum service to the United States Government if called upon. A technical committee was appointed, consisting of Louis J. Plumb (chairman), United States Rubber Reclaiming Co., Inc.; C. J. Howell, Pequanoc Rubber Co.; T. E. Furness, Philadelphia Rubber Works Co., William B. Pratt, E. H. Clapp Rubber Co.; Dr. Theodore Whittelsey, United States Rubber Co., and Dr. L. E. Weber (*ex officio*). The purpose of this committee is to take up all matters of a technical nature presented by the reclaimers for research and experiment.

The division held two sessions, during the interim partaking of a typical shore dinner for which the Point Shirley Club is famous. At one session Dr. L. E. Weber gave an interesting talk on the use of nitre cake, as a substitute for sulphuric acid, and this was followed by a general discussion.

H. S. Vorhis, secretary of the Rubber Association, was present, as was also W. T. Rodenbach, who, since his retirement from the reclaiming business, has been made an honorary member.

TRAFFIC COMMITTEE FORMED.

In view of the many important questions continually arising pertaining to traffic matters, the Board of Directors deemed it advisable to appoint a permanent traffic committee of this association consisting of the following: George F. Hichborn, traffic manager, United States Rubber Co., chairman; R. G. Kreitler, traffic manager, The Goodyear Tire and Rubber Co.; A. D. Phillips, traffic manager, The Fisk Rubber Co.; E. L. Tragesser, traffic manager, The B. F. Goodrich Co. This action was taken to harmonize and centralize in the Rubber Association all activities pertaining to freight-rate legislation, classification, and other traffic or transportation matters that affect the rubber industry as a whole.

A. L. Viles has been appointed secretary of the Traffic Committee, effective August 7, with offices in the association rooms. His duties will be to receive suggestions or complaints respecting traffic or transportation matters affecting any member of the association and to make any investigation necessary by reason of such suggestions or information. He shall notify all interested of such matters brought to his attention and obtain opinions from them as to how it affects their particular industry. When such data have been accumulated, the secretary will, if necessary, call a meeting of the Traffic Committee who will formulate some general plan of action.

The industry is now confronted with the most radical change in freight classification that has ever been suggested by the carriers, namely, the proposed consolidation of the official southern and western classifications which has been issued in tentative form to provide uniform descriptions, carload minimums, and rules, but retaining the separate ratings now carried in the issues of the three territorial classifications.

In this proposed consolidated classification several hundred advances in rates or minimums are suggested, many of which are so great as to affect the rubber industry vitally. For example, one change increases pneumatic tires in official territory from third- to second-class carloads, which represents an increase of approximately 35 per cent, and this increase, coupled with the general advance in rates of 25 per cent, presents a transportation burden that it is believed will be very detrimental to the industry; many similar situations exist with respect to other commodities manufactured or used by members.

The serious situation described in the foregoing obviously demands immediate and united action on behalf of the entire association in order that the Interstate Commerce Commission and the United States Railroad Administration may have placed before them such information and statements as will bring about a full realization of the effect of this proposed action on a great industry.

WAR SERVICE COMMITTEE OF THE RUBBER INDUSTRY OF THE U. S. A.

COAL AND POWER CONSUMPTION.

RUBBER manufacturers have been asked to supply information regarding their coal and power consumption during 1917, according to War Service Questionnaire No. 11, which requests the number of tons of coal and gallons of gasoline consumed; the number of kilowatts purchased and generated by hydroelectric power; the number of kilowatts purchased and generated by coal; the number of kilowatts generated by hydroelectric power and the horsepower developed by water-power and consumed.

REGARDING CRUDE RUBBER ALLOCATION.

War Service Questionnaire No. 12 requests manufacturers to supply information regarding the amount of crude rubber, green weight, not including balata, gutta percha, gutta siak and gutta jelutong, used during January, February, March, 1917 and 1918, and April, May and June, 1917 and 1918, in the production of pneumatic casings, tubes, motor and bicycle tires, and sundries, solid tires, mechanical goods, boots and shoes, insulated wire and insulating compounds, druggists' and stationers' sundries and surgical goods, clothing, carriage cloth, rubber sheeting, single- and double-texture proofing, hard rubber and rubber cement. The same questionnaire requests the total number of pneumatic and solid tires of all kinds, 3 and 3½ inches, and all kinds larger than 3 and 3½ inches, on hand at factory, branches, and dealers, in transit or on consignment, on July 1, 1918, compared with July 1, 1917.

REFER GOVERNMENT QUESTIONS TO WAR SERVICE COMMITTEE.

The following letter was sent to all rubber manufacturers on July 19:

In order to avoid duplication and to coordinate as far as possible the various governmental departments in their relation with our industry, the War Service Committee considers it desirable that all manufacturers refer directly to M. L. Heminway, secretary of the War Service Committee, 17 Battery Place, New York City, requests for specifications or information addressed to them from any governmental sources.

An effort is being made with the authorities in Washington to concentrate the inquiries of all departments with this committee, believing that this will relieve both the Government and the manufacturer of a great deal of unnecessary expenditure of energy and time in the collection of information.

RUBBER CONSUMED ON EXPRESS COMPANY CONTRACTS.

Manufacturers were notified on July 24 that the following express companies are now under control of the Government in the name of the American Railway Express Co., Inc.; American Express Co., Adams Express Co., Wells-Fargo Express Co., Great Northern Express Co., Northern Pacific Express Co., National Express Co., Southern Express Co.

As previously advised, rubber used on orders or contracts for any one of the above is subject to replacement without regard to allocation.

RECEIVERSHIP FOR BATAVIA RUBBER CO.

The Batavia Rubber Co., Batavia, New York, also operating the Simplex Rubber Co. of America, was recently placed in the hands of a receiver, both companies being involved, due to a suit brought by the Connecticut Cotton Mills Co., Boston, Massachusetts. Maxwell Bochow, president of the Batavia company, was appointed receiver, with authority to continue the business, as its capital stock amounts to approximately $600,000 and its general assets are said to be far in excess of the claim, which amounted to $9,333, although it was unable to obtain sufficient funds to meet present liabilities. The Batavia Rubber Co. manufactures pneumatic tires and the Simplex company, solid ones.

THE TODD RUBBER CO. IN CONNECTICUT.

The Todd Rubber Co., 42 State street, New Haven, Connecticut, consolidated on December 17, 1917, its three corporations within that state, namely, The Todd Rubber Co. of New Haven, The Todd Rubber Co. of New London, and The Todd Rubber Co. of Waterbury, Inc. The original company was incorporated in 1906, and was, like the new organization, the exclusive representative of the Kelly-Springfield Tire Co. in Connecticut. The capital stock of the present corporation consists of $200,000 common and $100,000 preferred. The officers are: Eyler J. Todd, New Haven, president and treasurer; Onslow B. Todd, New Haven, vice-president; Frederick H. Potter, Waterbury, secretary; and Bert W. Bray, New Haven, assistant treasurer—all in Connecticut. The company operates ten stores in New Haven, Waterbury, Bridgeport, New London, Meriden, Stamford, Ansonia, Danbury, Wallingford, and Hartford, Connecticut. In the last-named city its branch is known as the Kelly-Springfield Tire Sales Co.

News of the American Rubber Trade.

ELECTION OF THE REPUBLIC RUBBER CO.

AT the recent meetings of stockholders and directors of The Republic Rubber Co., Youngstown, Ohio, the following officers and directors were elected: Guy E. Norwood, president; L. T. Petersen, vice-president; C. F. Garrison, secretary; M. I. Arms, 2d, treasurer; H. J. Strambaugh, assistant treasurer; A. L. Irish, assistant secretary; directors—M. I. Arms, Robert Bentley, C. H. Booth, R. E. Cornelius, H. M. Garlick, Richard Garlick, John T. Harrington, Guy E. Norwood, L. T. Petersen, R. C. Steese, and John Tod.

TYER RUBBER MUTUAL RELIEF ASSOCIATION.

Employes of the Tyer Rubber Co., Andover, Massachusetts, have an independent relief organization conducted solely by themselves without interference by the company, but toward which the company contributes one-half the amount paid by members in dues. The admission fee is fifty cents and the weekly dues are ten; the company adds five for every ten. After a member has been identified with the organization a month, in case of illness he or she is entitled to $7.50 weekly for thirteen weeks, provided the foreman or secretary is notified and upon proper verification of the facts. In case of death, the other members are assessed twenty-five cents each, and a sum not exceeding $50 is paid to such person as the deceased shall have designated as beneficiary.

The organization was incorporated under the laws of the State of Massachusetts on December 4, 1917, and up to July 1, 1918, had paid out over $1,000 in sick benefits. The membership is more than 200. The officers are: Alex Valentine, president; Robert O. Williams, vice-president; James Gillespie, Sr., treasurer; Walter S. Rhodes, 22 Summer street, secretary; directors—John F. Morse, J. Chase, and Thomas Ewing.

AJAX TO OCCUPY NEW QUARTERS.

The Ajax Rubber Co., Inc., which has been located at 1796 Broadway, New York City, is to take possession by lease of the four-story building between Broadway and Seventh avenue in 57th street, which was formerly the home of the American Society of Civil Engineers. The property has a 75-foot frontage and a depth of 104 feet. The building will be remodeled so as to lower the first floor three feet, with a driveway at the western end and a vestibuled entrance to the offices above at the eastern. It is expected that the building will be ready for occupancy about December 1, 1918.

The first floor will be occupied by the New York selling branch; the second will contain the rooms of the officers and directors and the credit, collection and accounting departments; the third story will include the sales conference room, the offices of the secretary and general sales manager, and the offices of the export, sundry, traffic and branch house managers and sales correspondents; while the statistical and stenographic departments will be located on the top floor.

THE GIANT TIRE & RUBBER CO.'S NEW FACTORY.

The Giant Tire & Rubber Co., Findley, Ohio, whose plant was destroyed by fire on May 4, began manufacturing its line of automobile tires and tire accessories in its new factory on July 17. This is a one-story modern building containing 19,000 square feet of floor space and is arranged for handling work in the most efficient and economical manner. The company now has two plants, the accessory department with 24,000 square feet of space having been in operation since May 20. The most important products of this department are pulled fabric reliners, tire repair kits, and blowout patches. The company specializes, however, in rebuilding tires. Its daily capacity is 200 tires and 1,500 reliners. Its business has grown from a volume of $8,000 in 1914 to more than half a million dollars this year.

DIVIDENDS.

The American Wringer Co., Woonsocket, Rhode Island, on June 28, declared its regular quarterly dividends of one and three-quarters and one and one-half per cent, respectively, on common and preferred stock, payable July 15, 1918.

The Canadian Westinghouse Electric & Manufacturing Co., Limited, Hamilton, Ontario, Canada, declared its quarterly dividend of one and three-quarters per cent, payable July 2 on capital stock of record June 20, 1918.

The Converse Rubber Shoe Co., Malden, Massachusetts, declared its regular semi-annual dividend of three and one-half per cent, payable June 1, 1918.

The Corn Products Refining Co., New York City, declared its regular quarterly dividend of one and three-quarters per cent on preferred stock of record July 5, payable July 15, 1918.

The B. F. Goodrich Co., Akron, Ohio, at the quarterly meeting of its directors on July 24, 1918, declared dividends as follows: one and three-quarters per cent ($1.75 per share) on preferred stock, payable October 1, to stock of record September 20, 1918; one per cent ($1 per share) on common stock, payable November 15 to stock of record, November 5, 1918.

The Hood Rubber Co., Watertown, Massachusetts, declared its forty-second quarterly dividend of one and three-quarters per cent on preferred stock, payable August 1 on stock of record July 20, 1918.

The Kelly-Springfield Tire Co., New York City, declared a quarterly dividend of $1 per share on its common stock, payable August 1 to stock of record July 15, 1918.

The Portage Rubber Co., Barberton, Ohio, on July 12 declared regular quarterly dividends of three per cent and one and three-quarters per cent, respectively, on its common and preferred stock, the former payable August 15 on stock of record August 5, and the latter payable October 1 on stock of record September 20, 1918.

The Standard Underground Cable Co., Pittsburgh, Pennsylvania, declared a regular quarterly dividend of six per cent, payable July 10, 1918.

The United States Rubber Co., New York City, declared its regular quarterly dividend of two per cent on its first preferred stock of record July 15, payable July 31, 1918.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, declared a quarterly dividend of one and three-quarters per cent (87½ cents per share) on its common stock, payable July 31 to stock of record June 29, 1918.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on July 25 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois:

	Bid.	Asked.
Ajax Rubber Co. (new)	63	65
Firestone Tire & Rubber Co., common	108	111
Firestone Tire & Rubber Co., preferred	92	95
The B. F. Goodrich Co., common	45	46
The B. F. Goodrich Co., preferred	97	100
Kelly-Springfield Tire Co., common	50	51
Kelly-Springfield Tire Co., preferred	79	87
Miller Rubber Co., common	111	113
Miller Rubber Co., preferred	95	97
Portage Rubber Co.	115	120
Swinehart Tire & Rubber Co.	50	55
United States Rubber Co., common	61⅛	61⅝
United States Rubber Co., preferred	104¼	105¼

TRADE NOTES.

The Kelly-Springfield Tire Co., New York City, has moved its branch in Cleveland, Ohio, from 1900 Euclid avenue to 4600 Prospect avenue, where it occupies a three-story building of its own. A service station equipped with a hydraulic press is maintained. R. B. Pierce is manager and Otis R. Cook, general sales manager.

The Combination Rubber Manufacturing Co., Bloomfield, New Jersey, has appointed Joseph P. Hall general manager and Arthur R. Colvin superintendent of its tire and tube factory. Both were formerly with the Globe Rubber Tire Manufacturing Co., Trenton, New Jersey, as treasurer-director and superintendent, respectively.

The Kansas City Tire & Rubber Corp. announces its removal to 1015 Commerce Building, Kansas City, Missouri.

The Overland Tire & Rubber Co., Omaha, Nebraska, has purchased five acres of land at 30th and Taylor streets for its new factory facing Creighton Boulevard. An option on an additional twelve acres adjoining has been taken.

The Washington Tire & Rubber Co., Spokane, Washington, has purchased a factory site on East Sprague avenue, comprising approximately five and one-quarter acres, 1,250 by 150 feet, with trackage on the Chicago, Milwaukee & St. Paul railroad and the line of the Oregon-Washington Railroad & Navigation Co. It expects to break ground for the first unit about August 1. It is underwritten by R. C. Babbitt & Co., Old National Bank Building, and its officers are: Adrian G. Hanauer, president; Thadde , E. Lane, vice-president; Harry S. Burdick, treasurer, and R. C. Babbitt, director of sales.

The Craig Auto Tire Co. was established a short time ago at 2320 South Jefferson avenue, St. Louis, Missouri, by Edward A. and Warren A. Craig. Since then, Edward A. Craig has entered the Army and his brother has bought out his interest in the concern. Goodrich tires and tubes are handled as well as all brands of seconds and some accessories.

The Economy Tire Co. has been organized at 13 East Columbia street, Springfield, Ohio, by Edward S. Bell, who formerly had an interest in the Springfield Tire & Supply Co. The new concern handles a complete line of factory blemished and second tires and has the exclusive sale of Amazon tires for Clark county.

The Payne Saufley Rubber Co., Phoenix, Arizona, has admitted Ray W. Ward to membership and changed its name to the Saufley Rubber Co., Inc. It handles Kelly-Springfield tires and tubes. R. C. Saufley is president.

The San Bernardino Rubber Works, 595 Third street, San Bernardino, California, is distributor for Kelly-Springfield tires and tubes in San Bernardino county. It also handles Goodyear and United States tires. It maintains a complete vulcanizing equipment and has a 200-ton hydraulic press for truck-tire work.

The Bakersfield Tire & Rubber Co., 2030 Chester avenue, Bakersfield, California, is a partnership comprising Samuel and Edward N. Berk, the latter being now in government service. It handles tires and tubes exclusively as a wholesale and retail jobber and sells all standard seconds and firsts.

The United Auto Accessory & Parts Co. has been opened by H. Israel, associated with Felix and Jesse J. Jacobs and Mrs. Nettie Greenbaum, at the southwest corner of Second and Jefferson streets, Dayton, Ohio. It specializes in United States and Cleveland Standard tires and does vulcanizing and repairing.

The Ohio Rubber Co., 725 St. Clair avenue, N. W., Cleveland, Ohio, has increased its capital stock from $500,000 to $600,000 by the issue of $100,000 additional of common stock. The present authorized capital is $400,000 common and $200,000 preferred, of which $350,000 common and $151,000 preferred has been issued and paid in.

The New York Rubber Co., 84 Reade street, New York City, had an outing on Saturday, June 29, at Karatsonyi's Hotel, Glenwood-on-Sound, Long Island. The party went by motor bus. A baseball game between the mechanical and toy departments was followed by a dip in the Sound and dinner at the hotel.

The Manhattan Rubber Manufacturing Co., Passaic, New Jersey, is building a one-story building of the Austin type, 60 by 200 feet, to be used for storing raw materials.

The Manhattan Rubber Manufacturing Co., St. Louis, Missouri, announces the removal of its general offices to Suite 1222 Pierce Building, St. Louis, but will retain its present warehouse and telephone numbers at 115 North Second street.

Gutta Percha & Rubber, Limited, 47 Yonge street, Toronto, Ontario, Canada, expects to complete by the end of the present year the erection of several new buildings, alterations to its old buildings, and the electrification of its plant, the work on which has been under way for nearly two years. The cost of the changes will be between $750,000 and $1,000,000.

The Scioto Rubber Co., Columbus, Ohio, has increased its capital from $100,000 to $300,000, on account of the volume of government contracts it has on hand. This concern is building an addition 40 by 70 feet for use in employe welfare work, and a fireproof storage building 60 by 30 feet.

The New York City office of The Seamless Rubber Co., Inc., formerly located in the Barclay Building, 299 Broadway, has been discontinued, and future business will be handled from the main office in New Haven, Connecticut.

The Warren Rubber Co., Warren, Ohio, has increased its capital stock from $100,000 to $150,000, the increase comprising $20,000 common and $30,000 preferred stock. This is to provide sufficient capital to take care of its steadily growing business.

The Pearce Rubber Corp., Philadelphia, Pennsylvania, in February, 1918, was placed in the hands of H. C. Thompson, Jr., as receiver, 2015 Land Title Building, by the United States District Court. The assets have now been sold and the company is out of business.

The Archer Rubber Co., Milford, Massachusetts, is building a one-story storehouse for cloth and other supplies, 40 by 100 feet, mill construction.

At the annual meeting of the stockholders of the Easthampton Rubber Thread Co., Easthampton, Massachusetts, held July 9, 1918, the following officers and directors were elected: W. G. Bassett, president; L. S. Stowe, treasurer; F. W. Pitcher, general manager; directors, W. G. Bassett, L. S. Stowe, F. W. Pitcher, R. L. Williston and W. L. Pitcher.

The Smith & Hemenway Co., Inc., 261 Broadway, New York City and 120R Coit street, Irvington, New Jersey, manufacturer of the "Acornette" pump connection and "Red Devil" tools, is building an addition to its factory, 110 by 50 feet, two floors, equipped with sprinklers, for use in work on government contracts.

The Acushnet Process Co. of New York, Inc., has changed its name to the Acushnet Process Co., Inc., and has its office at 52 Vanderbilt avenue, New York City, instead of in Brooklyn, as formerly.

The Boomer & Boschert Press Co., Syracuse, New York, has taken over the business of the late W. D. Dunning and will hereafter be known as the Dunning & Boschert Press Co., Inc. The officers are: R. E. Boschert, president; W. S. Dunning, vice-president; C. A. Dunning, secretary and treasurer, and George E. Boschert, superintendent.

The Dorrite Insulation Co., Inc., 188 Culver avenue, Jersey City, New Jersey, has increased its stock from $200,000 to $300,000.

The plant of The Pioneer Asphalt Co., Lawrenceville, Illinois, manufacturer of "Pioneer" hydrocarbon, was totally destroyed by fire last month. The difficulty in obtaining building materials at the present time prevents any definite statement as to when operations will be resumed.

The Metal Hose & Tubing Co., Raymond and Tillary streets, Brooklyn, New York, has begun an addition to its plant which

will add 5,000 square feet more floor space for manufacturing purposes.

The Motor and Accessory Manufacturers, 33 West 42d street, New York City, have discontinued their office at Washington, District of Columbia, due to the fact that the recent appointment of the Regional Purchasing Departments by the Government has curtailed a considerable amount of the work the organization previously did in Washington.

The Rare Metals Products Co., Glenridge, New Jersey, has purchased the plant of the Seaton Chemical Co. at Belleville, New Jersey, at an approximate cost of $150,000, and expects to double the output of its present plant. The acquired property consists of about seven and one-half acres with a frontage of 700 feet on the Newark branch of the Erie railroad. A number of buildings are located on the tract.

GEORGE S. SHUGART.

THE recent promotion of George S. Shugart to the position of general branch sales manager of the United States Tire Co., New York City, is the reward of intensive application along one unbroken line of endeavor for over 22 years. He left a position in a bank to work for about half the salary for the Morgan & Wright Co. because, after looking ahead, he decided to aline himself with a business that seemed to have a future.

GEORGE S. SHUGART.

He was first connected with the bicycle tire departments successively in Baltimore, Maryland; Minneapolis, Minnesota; and Philadelphia, Pennsylvania. In those days punctures and blowouts were repaired free, and Mr. Shugart's work was, of course, an expense, not a profit to the company; though it brought many commendations, it was five years before it received recognition by the company. But that experience gave him a knowledge of tires that fitted him for his future work.

His next position was in the sales branch at Philadelphia, Pennsylvania, from which point he was transferred to the New York City branch. In a very short time he jumped to the head of the New York organization and was made New York manager. After that he went to Chicago, Illinois, and assumed charge of what was then the largest branch office of the Morgan & Wright Co.

Shortly afterward the Morgan & Wright Co. merged with the United States Tire Co. and Mr. Shugart became assistant central district manager of the larger company with headquarters at Chicago, Illinois. His next big promotion was when he became western sales manager, from which position he advanced to the one he now occupies.

The United States Railroad Administration has ruled that no more rubber matting and step treads will be used in railroad passenger or Pullman cars.

PERSONAL MENTION.

Clarence H. Low, secretary of the United States Rubber Reclaiming Co., Inc., New York City, is also president of the National Chain Co. that operates a factory at College Point, New York, manufacturing chains of all descriptions, including automobile non-skid chains.

The Firestone Tire & Rubber Co. announces the appointment of F. W. McWilliams as eastern cycle tire and accessory manager. Mr. McWilliams has been connected with this department ever since joining the company and his ability in these lines is responsible for his promotion.

F. W. MCWILLIAMS.

Roy L. Sergeant, formerly Pacific Coast manager of The Fisk Rubber Co., Chicopee Falls, Massachusetts, has been appointed director of sales of the Samson Tire and Rubber Corp., 318 Van Nuys Building, Los Angeles, California.

A. B. Cole has been appointed assistant to the manager of the department of publicity of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, to succeed M. C. Turpin, who resigned to accept a position in the Ordnance Department at Washington, as noted in our issue of June 1, 1918. Mr. Cole has been with the Westinghouse company since 1909, when he entered its engineering apprenticeship course. In 1912 he was transferred to the department of publicity where he has had considerable experience, since 1914 having been in charge of railway, power, marine, and R. D. Nuttall Co. publicity.

Walter J. Moore, formerly of the St. Louis branch of the United States Tire Co., has been transferred to the branch office of the same company at Washington, District of Columbia, as office manager.

Thomas F. Carey, formerly with the Electric Cable Co., Bridgeport, Connecticut, has been appointed and assumed the duties of superintendent of the Quabaug Rubber Co., North Brookfield, Massachusetts.

G. R. Edmonds has been appointed manager of the Great Falls, Montana, branch of The Fisk Rubber Co., Chicopee Falls, Massachusetts.

W. A. Haines has been appointed district representative at Detroit, Michigan, of the automobile equipment department of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania. He has been for some years the assistant district manager of the same department.

J. A. Scullin has been appointed manager in Cleveland, Ohio, for the Mason Tire & Rubber Co., Akron, Ohio.

B. C. Wilson has been appointed head of the publicity department of the Miller Rubber Co., Akron, Ohio. He will work under William Campbell, who is the advertising manager of the company.

H. W. JOHNS-MANVILLE BRANCHES.

The H. W. Johns-Manville Co., Madison avenue and 41st street, New York City, announces the following changes: Office at Youngstown, Ohio, removed to 520 Market street; office at Indianapolis, Indiana, removed to its new quarters at 209-217 West Washington street; office at Houston, Texas, to be located at 424-426 Washington avenue, on and after July 1, 1918.

A SUMMER SOUVENIR.

The General Magnesite & Magnesia Co., Philadelphia, Pennsylvania, has sent a useful souvenir to the rubber trade in the form of a bronze paper cutter of novel shape, bearing on the handle the company's seal in red, white, and blue enamel and stamped on the handle a list of its products.

NEW INCORPORATIONS.

Allied Rubber Co., Inc., July 19 (New York), $10,000. H. C. and G. Zaun, both of 978 Greene avenue, L. M. Brent, 2181 Bedford avenue—all of Brooklyn, New York.

American Rim Tire & Rubber Co., June 10 (Delaware), $500,000. C. L. Rimlinger, M. M. Clancy, F. A. Armstrong—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To manufacture and deal in wheel rims for motor vehicles.

Armorcord Tire & Rubber Co., June 7 (Delaware), $100,000. F. Giles, E. M. Haslam, O. N. Ryan—all of Wilmington, Delaware. Principal office with the Colonial Charter Co., 927 Market street, Wilmington, Delaware. To deal in anything pertaining to rubber goods, tubes and tires for wheels of automobiles, motorcycles, bicycles, and other vehicles.

B. S. R. Manufacturing Co., Inc., June 26 (New York), $2,000. W. S. Schwartz, North Plainfield, New Jersey, P. Bookstayer, 842 Eastern Parkway, M. Rapps, 99 Chester street, both of Brooklyn, New York. To manufacture rainproof garments.

Cross-Country Tire Co., Inc., July 8 (New York), $1,250. R. Loewenthal, E. Loewenthal, S. Berman—all of 51 East 42d street, New York City. To manufacture steel and pneumatic and solid tires and other rubber goods.

Davis & Cartland Co., February 4 (Maine), $20,000. A. T. Davis, C. A. Davis. Principal office, Portland, Maine. To deal in, manufacture and repair boots and shoes.

Davis-Racine Rubber Co., June 3 (Montana), $25,000. I. J. and M. L. Davis, H. F. Lee—all of Great Falls, Montana. To sell at wholesale and retail automobile tires, rubber goods, and other accessories.

Equitable Tire & Rubber Co., Inc., June 15 (New Jersey), $50,000. A., S., and A. I. Weisinger—all of Newark, New Jersey. Principal office, 256 Halsey street, Newark, New Jersey; agent in charge, J. F. Murray, Jr. To deal in automobile tires, tubes, and accessories of all kinds appertaining to the general motor tire and rubber business.

Falls City Rubber Co., Inc., June 7 (Kentucky), $10,000. Ben, Henry, and B. Schulman—all of Louisville, Kentucky. Principal office, 530 South Third street, Louisville, Kentucky. To deal in old automobiles, tires, accessories, etc., in connection with the general automobile business.

Fox Tire & Rubber Co., July 15 (Delaware), $500,000. J. T. Jones, F. S. Daneberg, I. P. Good—all of Milwaukee, Wisconsin. Principal office with the Corporation Co. of Delaware, Equitable Building, Wilmington, Delaware. To manufacture rubber tires and rubber goods of every description.

Globe Smelting & Refining Co., Inc., July 15 (New Jersey), $50,000. J. and M. Leffer, both of 161 Pavonia avenue, Jersey City; B. and A. Friedman, both of 53 Central avenue, Passaic—all in New Jersey. Principal office, 53 Central avenue, Passaic, New Jersey; agent in charge, B. Friedman. To buy and sell scrap rubber, etc.

Great Tire Co., Inc., June 22 (New York), $5,000. S. Bernheim, 35 Nassau street, New York City, C. A. Weldon, 591 Seventh street, M. Hyman, 127 Seventh street, both of Brooklyn—all in New York. To manufacture tires, etc.

Hardman Rubber Corp., June 22 (Delaware), $185,000 authorized preferred stock and 5,000 shares common stock without nominal or par value. J. C. Draper, C. L. Rimlinger, M. M. Clancy—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, 7 West 10th street, Wilmington, Delaware. To buy, sell, and deal in rubber in crude or manufactured forms.

Hays Rubber Co., June 8 (Texas), $5,000. T. M. Hays, L. E. Bain, W. E. Seifer—all of Waco, Texas. Principal office, Waco, Texas. To buy and sell automobile tires, tubes, and accessories.

Iroquois Tire Co., Inc., June 20 (New York), $100,000. D. E. Hanlon, F. J. Byrne, both of Cornwall, New York, and J. B. Wentworth, 336 West 95th street, New York City. To manufacture tires, etc.

The Miller Rubber Co. of New York, June 13 (Arkansas), $1,000. N. B. Quick, J. O'Connell, both of 258 Broadway, S. A. Foot, 302 West 79th street—all of New York City. Principal office, 296 Broadway, New York City. To deal in rubber goods.

Oxtread Tire & Rubber Co., Inc., June 19 (New York), $25,000. W. I. Payne, S. D. Childs, both of 286 Fifth avenue, New York City, M. Payne, 39 Edgewood Place, New Rochelle, New York. To manufacture tires, etc.

Perfection Truck Tire Co., June 27 (Illinois), $35,000. F. H. Drury, W. Hamilton, W. L. Pollard, Chicago, licensed to open stock subscription books. To do a general manufacturing, selling, and commercial business. Organization not yet completed.

Prescription Support Co., May 3 (Arizona), $500,000. C. C. Donald, Gouverneur, and H. B. and M. Hanson, Watertown—all in New York. Principal office, Phoenix, Arizona. To manufacture and sell body braces, trusses, elastic stockings, abformators, and other articles used in the medical profession.

The Quality Tire & Rubber Co., June 13 (Indiana), $750,000. S. E. and D. E. Johnson, H. C. Stage. Principal office, Anderson, Indiana. To manufacture, buy, and sell automobile tires, tubes, rubber hose, etc.

C. B. Reynolds Manufacturing Co., March 19 (Indiana), $30,000. C. B., C. D., and J. E. Reynolds—all of Taft, California. To manufacture airless tire cores, improvements thereon, and inventions.

Royal Tire & Supply Co., June 11 (Illinois), $2,500. H. Kleinman, M. Greenwald, S. Rissman. Principal office, 1461 South Michigan avenue, Chicago, Illinois.

Surety Tire & Rubber Co., July 15 (Delaware), 10,000 shares capital stock without nominal or par value. W. L. Burgess, O. L. Menzing, A. E. Koerner—all of St. Louis, Missouri. Principal office with the Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To deal in rubber goods and products and automobile tires and tubes of every description.

Thrift Rubber Corp., June 25 (New Jersey), $100,000. J. S. Price, 176 Union avenue, W. H. K. Davey, 155 Academy street, both of Belleville, New Jersey; N. B. Gaines, 237 West 109th street, New York City. Principal office, 155 Academy street, Belleville, New Jersey; agent in charge, W. H. K. Davey. To manufacture and deal in goods made either wholly or in part of rubber, rubber substitutes or compositions.

Toledo Tire Co., June 25 (Massachusetts), $25,000. W. L. Alexander, 86 Grafton street, Arlington; H. Blumenthal, 1375 Commonwealth avenue, Allston; G. L. Ellsworth, 1705 Commonwealth avenue, Brighton—all of Massachusetts. Principal office, Boston, Massachusetts. To buy, sell and generally deal in automobile tires, tubes, accessories, and parts.

Valley Tire Co., July 25 (Indiana), $10,000. E. J. McErlain, C. H. and D. A. Moon—all of South Bend, Indiana. Principal office, South Bend, Indiana. To manufacture and sell tires for automobiles.

W. S. W. Tire & Rubber Co., June 21 (Indiana), $30,000. C. L. Smith, E. S. Webster, both of South Bend, Indiana, and W. W Webster, Naugatuck, Connecticut. Principal office, South Bend, Indiana. To manufacture rubber goods and products of all kinds and descriptions.

CANADIAN IMPORT PROHIBITION ON CRUDE RUBBER.

The importation into Canada of crude rubber is prohibited except under license from the Minister of Customs issued at the request of the Canadian War Trade Board. Under the customs statistical classification crude rubber is defined as including rubber and gutta percha, crude caoutchouc or india rubber unmanufactured. The order in council establishing this prohibition is dated June 15 and appears in Customs Memorandum 2218B of June 20.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE demand for a recreation center in addition to the athletic field maintained by The B. F. Goodrich Rubber Co. for its employes in the city of Akron has resulted in the purchase of a large tract of land near the city, including Rex lake. A good-sized summer cottage has been erected on the grounds, where employes may spend week-ends and vacations. A bathing pier and beaches have been provided; also, boats for fishing, basket-ball and tennis courts, and free transportation between Akron and the lake, a distance of nine miles.

The B. F. Goodrich Co. will also build an athletic field including tennis courts and a baseball diamond, at the company's summer home for its women employes. The athletic director, Eddie Connelly, is planning a field meet there and several base-ball teams have already been organized among the girls.

The B. F. Goodrich Co. recently received a cargo of crude rubber which came from South America to New York in a sailing vessel. This is the first time in many years that crude rubber has been shipped to Goodrich in this way. The cargo of fine Pará rubber was gathered in the Beni basin, Bolivia, and came in the form of biscuits, each weighing about one hundred pounds.

John A. Hillier, of Newark, Ohio, former Akron man, identified with The B. F. Goodrich Co. in the mechanical sales department for six years, later Newark, Ohio, branch manager, was recently married to Miss Mary Virginia Hosier of Norfolk, Virginia. Mr. and Mrs. Hillier will make their home in Norfolk, where Mr. Hillier is employed as special agent in United States Naval Reserve Force.

* * *

Every pay-day from 11 o'clock in the morning until midnight, the room near the main entrance of the Firestone Tire & Rubber Co., which was occupied by its hospital before the erection of the present quarters, is a receiving station for thrifty Firestone men and women who wish to make deposits in Akron banks. Here they turn in their bank-books and members of the pay-master's department give them receipts, the bank-books being returned to them the next day after representitives of the Firestone company have taken the money to the banks.

* * *

J. F. Cast has been appointed assistant manufacturers' sales manager, a newly created position made necessary by the rapid growth of this department of the business of the Firestone Tire & Rubber Co. The promotion of Mr. Cast is in recognition of the value of his services and his popularity in automobile circles. His rise with the Firestone organization, since he joined it as a salesman in 1910, has been steady. In 1911 he was made Cleveland branch manager, holding this position until 1914, when he became special representative in charge of a larger territory.

J. F. Cast.

* * *

C. M. White, jr., has joined as sales manager the forces of the Firestone Steel Products Co., which absorbed the rim plant of the Firestone Tire & Rubber Co. During the last three year he has been factory representative for the Detroit Steel Products Co. Previous to that he was manager of the Stromberg Motor Devices Co. for two years. Before joining the Stromberg people he was factory representative for the Firestone Tire & Rubber Co.

* * *

An excellent example of unselfish patriotism which other Americans could follow was offered recently by William C. Rafeld, employed by the Firestone Tire & Rubber Co. Rafeld got his annual vacation but instead of hiking to some summer resort he remained at home—to sell War Savings Stamps. Rafeld was down on the border for a year and was given his honorable discharge when the Government refused to allow those with dependents to remain in the service. He lives at Kenmore, Ohio.

* * *

The Star Rubber Co. has increased its common capital stock from $235,000 to $352,500, the entire issue of additional stock having been taken by the common stockholders. It is the intention of the company, if its business continues as favorable as during the last few months, to place the common stock on a six per cent dividend basis, payable at the rate of one and one-half per cent quarterly, beginning August 1, 1918.

* * *

War business of the Miller Rubber Co. is increasing very rapidly. That now being done by the company includes the manufacture of surgical goods, gas masks and a number of other special sundries. The company has sufficient rubber free from allocations, on hand and to come, to last well into next year. Estimated sales of the company will amount to $18,000,000 for the year 1918.

One of the most interesting phases of military activity around Akron is the work in the United States Army tire repair schools. The Miller Rubber Co. is cooperating with the Government in training repair men and at the Miller plant each month a class of enlisted men puts in four weeks of diligent work. There are six hours of class work each day. The men are under the command of Captain A. E. Aub, and are quartered on the campus of Akron University. When the enlisted men first enter the Miller class they are confronted with a huge pile of old tires of every variety, cord molded and wrapped. There are numerous tubes for their inspection and study. After two or three lectures, the men begin to tear apart the tubes and casings to learn how they are made; then the actual repair work begins. An aged casing that has been skillfully repaired until it will again render service is subjected to terrific abuse until it looks fit for nothing but the scrap pile. This casing is turned over to a student with orders to repair it so that it can be used again. Under the direction of Miller tire repair men of long experience the work is done. When four weeks of work have been concluded, each student must pass an examination of at least 29 questions concerning tire building and repairing. He is then graded, and results show that the students learn their lesson well. Out of 107 men in the June class the average grade was 90 per cent.

Girls at Mason Tire & Rubber Co.

The Mason Tire & Rubber Co. is employing women workers to fill the places of many men now in service. They wear a one-piece bloomer suit which gives the effect of a uniform, but some of them wear white collars which relieve the severity of the garment. The Mason company is steadily increasing the number of girls in its employ.

The Phoenix Rubber Co., reclaimers, have completed a new building 50 by 100 feet, of fireproof construction, costing $18,000. It will be used for storage purposes and is the first unit of a warehouse to be built later which will have a capacity of 10,000 tons. Another building for use as a repair workshop has recently been completed at a cost of $3,000.

The annual meeting of the stockholders of the Phoenix Rubber Co. was held in the company's offices in East Akron, July 8. The directors chosen at the election are Theodore Krumeich, F. R. Ormsby, Ernest C. Diebel, Edmond F. Krumeich, S. G. Rigdon, J. G. Bretson, and Max Solomon. The following officers were elected: president, Theodore Krumeich; vice-president, F. R. Ormsby; treasurer, Edmond F. Krumeich; secretary and general manager, S. G. Rigdon; general superintendent, J. G. Bretson. The affairs of the company, which manufactures reclaimed rubber, were shown by the reports to be prospering.

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The Turner, Vaughn & Taylor Co., Cuyahoga Falls, is devoting fifty per cent of its time to the manufacture of wire products used in trench warfare.

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In accordance with the prevailing custom at the Goodyear Tire & Rubber Co. of awarding service pins at the completion of each five-year term of service with the company, President F. A. Seiberling was given his 20-year pin this month. The event marked the completion of twenty years of service during which he has seen his little company, which started to make tires for bicycles and carriages back in 1898, grow to one of the largest rubber plants in the world.

W. D. Shilts of the Goodyear Tire & Rubber Co. has been appointed on a committee of the trustees of Mount Union college at Alliance, Ohio, to select possible courses for maimed soldiers returning to America from the battle front. Mr. Shilts will be one of the men charged with the duty of providing special college courses for soldiers whose condition will be such as to render them unfitted for the resumption of their former professions or occupations.

Thirty girls from Oberlin college are working in the gas mask department of the Goodyear Tire & Rubber Co.'s plant. The girls are from various classes, ranging from freshmen to seniors. They come from the various schools at Oberlin, including the Conservatory of Music, Kindergarten School, Conservatory of Art and the Liberal Arts College. The girls became interested in the work through a speech by W. F. Fisher at one of their chapel exercises, where he explained to them the opportunity for patriotic work. They formed a club at the close of the school semester for the purpose of securing work in Akron and now they are sticking to their jobs with the determination of professional rubber workers.

Girls of the Goodyear Tire & Rubber Co. are making scrap books for our soldiers confined in hospitals in France. The Goodyear girls are conducting their activities under the name of the Kipling Klippe Klub, the idea of furnishing these books to afford the soldiers a bit of good cheer during the hours of their convalescence having originated with Rudyard Kipling, who first interested the girls of England in making scrap books for the Tommies. It is expected that a large supply of books will be ready for overseas shipment early in August.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

EARLY in the month there was staged at Boston's leading hotel, the Copley-Plaza, a shoe style show, which was attended by footwear buyers from all over the country, and a few from abroad. The great ball-room was especially arranged for the affair, an artistically designed runway being built nearly the whole length in the center of the hall, with seats ranged along its sides and end, and on this runway living models paraded, clad in fashionable habiliments, and wearing shoes of next fall's and next spring's styles. Around the edges of the hall were booths in which shoe and leather men displayed their samples, while nearly the two entire floors above were occupied as sample rooms. Although most of the exhibits were of shoes of leather, and of leather itself, there were some exhibits of rubber manufacturers. Prominent among these were the following:

The United States Rubber Co., New York City, had two exhibits, one devoted to Rinex soles, and another showing the full line of rubber-soled canvas upper tennis shoes which is being exploited under the trade marked name of Keds.

The Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, also exhibited a line of tennis shoes, and a "Win-the-War" service shoe for working men, which has a brown duck upper, a rubber and fiber sole, and a cork insole.

In this exhibit several half-biscuits of rubber were "doctored," a cleft being made in each, in which a sprig of a common house rubber plant was inserted. They reminded one of sprouting cocoanuts. Many visitors were greatly surprised to "see how rubber grows," much to the amusement of Messrs. Gray and Bridges, the perpetrators of the camouflage.

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The Converse Rubber Shoe Co., Malden, Massachusetts, exhibited a full line of its new process line of "De Luxe" tennis, both high and low cuts, goods as handsome and durable as any turned out in leather.

Among the other exhibits were several makes of "fiber" soles and rubber heels. In the former it was noticeable that the manufacturers are endeavoring (and with excellent success) to imitate in color and finish the leather soles for which they are substituted. As above mentioned, the United States Rubber Co. exhibited Rinex soles and Spring-Step heels, and the "model" representing this company on the runway proved to be a man eleven feet high, six feet of which was natural, the additional five feet being stilts concealed under the elongated trousers worn. This camouflaged giant attributed his sure-footedness to the friction plug heels and soles manufactured by the company.

It should not be omitted that the United States Rubber Co. was represented each night by an attractive model in a bathing suit, and enveloped in a beautiful rubber cape, ornamented with rubber cut-outs of contrasting color, and this matched by a bathing hat—not a cap—and scarf also of rubber, while the model's feet were protected by bathing shoes of attractive design.

The show was so great a success that already plans are under way for a larger one next summer.

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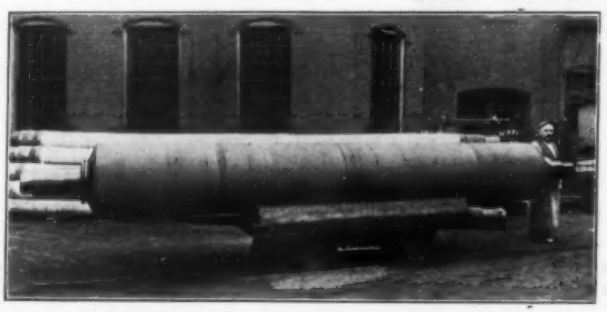
What is claimed to be one of the largest rubber-covered rolls in the world has recently been recovered by the Boston Belting



ONE OF THE LARGEST RUBBER-COVERED ROLLS IN THE WORLD.

Corp., of this city. There are six such rolls, belonging to the Ontario Paper Co., Thorold, Ontario, Canada, and these six are in turn sent to Boston for covering with rubber. The cores were made in Wilmington, Delaware, and are about 230 feet long.

They are of cast iron, hollow, and have heavy steel bearings forced on. Each roll weighs between 12,000 and 15,000 pounds. The rubber cover, somewhat over 190 inches wide, weighs about 1,000 pounds.

These rolls are for the big Fourdrinier paper machines which make a continuous sheet of paper the above-mentioned width at the rate of 650 feet a minute, or about 75 tons of paper in a 24-hour day. The rolls have to be refinished by a grinder lathe every few weeks, and after the rubber cover has been reduced too much in thickness, it must be recovered. The Boston Belting Corp. has for years made a specialty of this work and rolls are sent here continually for recovering.

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The Converse Rubber Shoe Co., Malden, has founded a newspaper, to be published every week for distribution to its employees. It is named "Triple Tread," which is the trade-mark the company puts on its best-quality goods. The little paper is full of articles and items regarding the company, its work and its workers, and will undoubtedly be of value in promoting good fellowship among the employes and a means of closer communication between the various departments, as well as between the management and the rank and file of the workers, male and female. This adds another to the list of rubber factory papers.

* * *

A handsome specimen of rubber factory house-organs already established is the "Hood Arrow," the seventh number of which is dated July 1. Being published so near the National Holiday, it is appropriately printed in red, white, and blue, and contains the full text of the Declaration of Independence. Dr. R. S. Quinby, besides being medical adviser, surgeon-on-the-spot, and welfare director for the company, is editor-in-chief, with J. F. Day as managing editor, and a staff of reporters in the various departments. The "Hood Arrow" is entertaining, instructive and gossipy, and is liberally illustrated with half-tones and original cartoons.

* * *

The "Fisk Bulletin," published by the Social and Athletic Association composed of employes of The Fisk Rubber Co., Chicopee Falls, comes out every Friday with eight pages of news, notes, doings of the baseball and basket-ball teams, the knitting club, and the various other organizations of Fisk workmen and workwomen, letters from Fiskers who have "gone to the front," and a great many good-natured personals. This paper is well into its second year, having been started in May, 1917. It is evidently extremely popular with the "Fiskers."

The July 19 issue of the "Fisk Bulletin" has the following interesting mention:

The factory library has recently added two new books to its list—"What I Saw in the Tropics," and "Crude Rubber and Compounding Ingredients," both by Henry C. Pearson, Editor of THE INDIA RUBBER WORLD, which publication is also received about the first of every month.

For various reasons, few of us can personally travel through the tropics where the largest proportion of rubber is raised, but through Mr. Pearson's "magic wand" we are able to take such a journey by the medium of "What I Saw in the Tropics." The book consists of a series of letters from places visited by the author in Ceylon, Malay States, Mexico, Nicaragua, Costa Rica, Panama, Jamaica and Hawaii, and contains many little amusing personal incidents of the trip which make it entertaining as well as instructive.

The second book, "Crude Rubber and Compounding Ingredients," makes a good sequel to "What I Saw in the Tropics," because it deals with the chemical and physical tests and processes through which the rubber must go in preparation for its various uses. Formerly the chemical side of the commercial projects was overlooked, but now it plays an important part.

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Then there is the "Candee Observer," a big eight-page sheet printed at New Haven, Connecticut, full of factory news, gossip, pictures, helpful hints, and a continued story for which "motion picture rights are reserved." This is in charge of Alwyn D. Rupp, a trained newspaper man, and differs from the others, as it contains tradesmen's advertisements.

* * *

"Simplex Day" this year was July 13, when the officials and employes of the Simplex Wire & Cable Co., the Morss & Whyte Co., the Simplex Heating Co., and the Swett & Silbey Co., all of Boston, held their annual picnic at Norumbega Park, one of Boston's riverside amusement grounds. They brought a band with them and in addition to the list of sports arranged by the field day committee, dancing and other attractions of the pleasure resort were liberally patronized.

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Quincy Tucker, whose travels in rubber-producing countries have given him large acquaintance in the business, and who is now Boston representative of the Aluminum Flake Co., Akron Ohio, has been appointed chairman of the house committee of the Hull division of the Boston Yacht Club. Yachting has been dull on account of the war, but as the club-house is close to Fort Revere in Hull, and very near to Bumkin island and several of the harbor forts, under the chairmanship of Mr. Tucker the season promises to be very active, not on the yachts, but at the club-house. A fair and dance was held on the 17th of last month, which netted quite a sum for the Red Cross, and a dance on the 24th added substantially to the treasury of the Y. M. C. A.

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The Hood Rubber Co., East Watertown, raised the wages of its 7,700 employes the first of last month, this being the second increase this year, one advance having been given March 25. This is one reason for the marked loyalty of the workers of that company. Not only are they getting more money, but the company is helping them to save money by carrying on a store right in the plant, which is described elsewhere in this issue.

* * *

A peculiar phase of the changes in specifications in elastic webbing for gas masks is the total closing down of one establishment and the silencing of machines in another in the vicinity of Boston. The war masks were made with webbing about an inch wide, and this was to be made of covered rubber cords. One factory, covering rubber thread exclusively, rejected all orders from its customers so that it might devote its entire capacity to this work for the government. Then it was decided that this covering did not in any manner improve the webbing, as regards extra protection of the rubber from the gases. The gas mask specifications were changed and this factory, having turned its customers over to other firms, is practically put out of business. The other concern mentioned has several lines of product, and is not so heavily hit by the change.

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To Marcin Zajac, an employe of the Fisk Rubber Co., Chicopee Falls, Massachusetts, has been issued a patent on a torpedo guard for ships. Zajac came to this country in 1914, and the sinking of the *Lusitania* caused him to study and experiment, with the above result. He has presented this invention to the United States Government as his contribution to his adopted country to help toward winning the war against Germany.

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The Boston Shoe Trades Club was formally opened on July 11, the new club-rooms being situated at 22 High street, in the heart of the shoe district. Quite a goodly proportion of the personnel of the rubber footwear trade in this city are members, and many of their customers will undoubtedly be entertained at the handsome new quarters.

* * *

Last month, mention was made of the celebration of the golden wedding of Mr. and Mrs. Erskine F. Bickford, of Malden, on June 8. Just five weeks from that date Mrs. Bickford died. Mr. Bickford, who for many years was superintendent of the factories of the Boston Rubber Shoe Co. in Malden, has a host

of friends in the trade who will sympathize with him in his bereavement.

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The Alfred Hale Rubber Co. has disposed of its factory at 17 Covington street, South Boston, and has purchased the land, buildings, good will, trade-marks, and patents—in fact, all the assets of the Atlantic Rubber Co., Atlantic, Massachusetts, where it will devote its energies exclusively to the manufacture of molded goods, the sheeting of rubber, and proofing fabrics. The company has transferred its diving-suit business to the United States Rubber Co.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE most serious condition that has arisen during the month in connection with the Rhode Island rubber industry concerns the strikes that have occurred in three of the subsidiary plants belonging to the United States Rubber Co. These are the National India Rubber Co. at Bristol; the Alice Rubber Shoe Mill at Woonsocket, and the Millville plant of the Woonsocket Rubber Co. at Millville. Some departments at both the Alice and the Millville plants were operated a few days longer, but both plants were eventually closed and the foremen sent on a vacation of one or two weeks, being informed that they would be notified when their services were required.

On the 19th, sixty-nine men of draft age who did not have white registration cards with them were arrested at Bristol, most of them at the plant of the National company, and were locked up for investigation. Later, all of the men were able to procure their registration cards and were released, although Federal officials stated that the "work or fight" law would be rigidly enforced.

At a meeting of the strikers held at Woonsocket, Harry B. Deming and John J. Trait, agents of the Plant Protection Department of the War Department, urged the men not to hold up production of government goods, including the rubber shoes known as "Pershing Walrus," which are being made at the Woonsocket plant. Their differences, these speakers said, should have been taken up with the War Labor Board.

Meanwhile the National company is taking account of stock, after which it expects to resume work as usual.

The State Board of Tax Commissioners has filed with General Treasurer Walter Read its annual report of the excess tax on corporations doing business within this state. These taxes are now due and payable, having been assessed from July 1. Included among the corporations assessed on $50,000 or more of excess are the following identified with the rubber industry and allied branches: American Electrical Works, Phillipsdale, $2,674,808.37; American Emery Wheel Works, $319,913; American Multiple Fabric Co., $139,393.60; American Wringer Co., $1,080,329.47; Anchor Webbing Co., Pawtucket, $124,534; Atlantic Tubing Co., Cranston, $243,135; Bourn Rubber Co., $168,508.84; Collyer Insulated Wire Co., Pawtucket, $206,605.75; Davol Rubber Co., $280,652; Everlastik, Inc., $387,886.36; Glendale Elastic Fabric Co., $249,550.20; Goodby-Rankin Co., $83,071.28; The B. F. Goodrich Rubber Co., $162,151.62; The Goodyear Tire & Rubber Co., $83,627; Holbrook Rawhide Co., $72,081; Mechanical Fabric Co., $582,033; Narragansett Rubber Co., Bristol, $121,276.60; National India Rubber Co., Bristol, $1,535,200.33; New England Butt Co., $250,255.40; O'Bannon Co., $1,204,699.56; Phillips Wire Co., $2,332,280; Revere Rubber Co., $667,580; Sterling Tire Corp., Rutherford, New Jersey, $74,048.78; Tubular Woven Fabric Co., Pawtucket, $71,492.99; United States Rubber Co., New York, $1,874,013.99; United States Tire Co., New York, $50,304; Washburn Wire Co., Phillipsdale, $2,430,559.39; Woonsocket Rubber Co., Woonsocket, $533,621.62.

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Arthur H. Emerson, assistant general sales manager and credit manager in the wire division of the National India Rubber Co., Bristol, has resigned to take effect August 31, having accepted a position in another line of business. Mr. Emerson was formerly secretary-treasurer at the Bristol office of the National Co.

Extensive general repairs have been made at the plant of the National India Rubber Co. during the past few weeks, and two stock sheds, each 20 feet by 50 feet, are being erected.

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A number of alterations and improvements are being made at the plant of the American Wringer Co. on Social street, Woonsocket, and several others have been planned to meet the increasing growth of the business. A steel bridge, about 34 feet in length, covered in, is being constructed between the storehouse and the main mill building. Extensive alterations have also been made to the office of the company.

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The contract has been awarded for the erection of an addition to the store room of the Woonsocket Rubber Co.'s plant at Millville and work will be pushed as rapidly as possible. The addition is to be 65 by 35 feet, of frame, one story high, with concrete foundations and a tar and gravel roof. Extra heavy reinforced foundations are also being installed for the calendering room and a general rearrangement of the machinery therein is to be made.

* * *

Otto M. Munroe, for the past ten years commercial agent of the Bay State Line of steamers between Providence and New York, has resigned, and took up new duties July 1 as traffic manager for the Revere Rubber Co. He had been connected with Sound steamboating in executive capacities since 1900, having been agent in Providence of the Clyde Line, Neptune Line and Enterprise Transportation Co., as each concern started its service.

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Work on the additions and improvements at the plant of the Bourn Rubber Co., Warren, Waldo, and Westfield streets, Providence, is progressing steadily. During the early part of the month more than 25,000 feet of concrete floors were installed in the new plant of the company.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE new order of the United States Fuel Administration prohibiting the use of anthracite in excess of buckwheat coal during the coming winter without a special permit will affect some of the Trenton rubber manufacturers. Last winter when soft coal became so scarce that factories were threatened with a shut-down, the plants were compelled to use hard coal in sizes as large as chestnut and pea. The situation is more acute this year, however, and the Fuel Administration was compelled to issue this drastic order. John S. Broughton, head of the United & Globe Rubber Manufacturing Cos., who is fuel administrator for this section, has made a plea for more coal for Trenton manufacturers. He furnished statistics showing the great need for coal by industries turning out government work, and also that New Jersey's population has greatly increased during the summer, thereby raising the demand for fuel.

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The Panther Rubber Manufacturing Co., Stoughton, Massachusetts, has purchased from Edmund C. Hill the plant of the American Rubber Co., situated at the foot of Perrine avenue, and adjoining the Belvidere division of the Pennsylvania railroad. About an acre of ground surrounds the plant, giving plenty of additional room for enlarging the works. The Panther company, which formerly owned the Sanhican Rubber Co. plant at Brookville, a suburb of Trenton, announces that it will engage in the manufacture of rubber heels and soles on the American Rubber Co. site. A number of alterations are contemplated.

The new management intends to make the works one of the most modern of its kind in this section.

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Robert J. Stokes, superintendent of the Thermoid Rubber Co., is spending the summer with his family in the Pocono Mountains. They are occupying a bungalow there and Mr. Stokes makes frequent business trips to Trenton.

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The Endurance Tire & Rubber Co., of New York and New Brunswick, has been incorporated at Trenton with $1,000,000 capital to manufacture and deal in tires and other kinds of rubber goods. The incorporators are Harry G. Smith and D. R. Daly, of New York, and Otto Wuerst, of Brooklyn.

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Mrs. Chester Adams, a widow, is the first Trenton woman to take up the work of repairing automobile tires, and is highly successful, supporting her family thereby. She is employed at the Toman shop on South Warren street.

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The Empire Rubber & Tire Co. has started a War Savings drive among its many employes who are responding liberally. The company hopes to be the first concern in the 100 per cent class among the Trenton rubber industries.

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Joseph B. Foley has been made a sergeant in the Quartermaster Corps and is now stationed at Camp Johnston, Jacksonville, Florida. He is a son of Arthur R. Foley, a traveling salesman for the Home Rubber Co., who lost his life on the *Lusitania*.

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The residents of Flemington, New Jersey, inaugurated a novel scheme recently to raise funds for the Red Cross. A day was set aside as "Rubber Day" and the citizens were requested to take all surplus old rubber and pile it on the Court House pavement. By night, there was a high stack of tires, hose, boots and rubbers. The scrap rubber was sold for $115.

ANNUAL MEETING OF THE RUBBER SECTION OF THE AMERICAN CHEMICAL SOCIETY.

The Rubber Section of the American Chemical Society will hold its annual meeting in Cleveland, Ohio, September 10 to 13, inclusive, where the society is to have its autumn session. As an outgrowth of the discussion of accelerators at the last annual meeting of the Rubber Section, a committee was appointed to investigate and report on poisoning caused by the industrial use of accelerators. This committee will announce the results of its research at the coming meeting. The members are: Dr. R. B. Earle (Hood Rubber Co., Watertown, Massachusetts), chairman; J. M. Bierer (Boston Woven Hose & Rubber Co.), and W. E. Kavenagh (Plymouth Rubber Co., Canton, Massachusetts). They were purposely chosen from one section of the country because it was felt that it would be unwise at present to call together men from distant points to discuss the subject, but adequate opportunity will be given for securing the views of those who may be present from other sections.

The executive committee in charge of arrangements for the Cleveland meeting includes: Dr. Lothar E. Weber, consulting chemist, Boston, Massachusetts, chairman; C. L. Boggs, Simplex Wire & Cable Co., Boston, Massachusetts; G. T. Cottle, A. A. Wire Co., Newark, New Jersey; George Oenslager, The B. F. Goodrich Co., Akron, Ohio, and John B. Tuttle, Firestone Tire & Rubber Co., Akron, Ohio, secretary, to whom suggestions for the meeting should be sent promptly. Original papers will be welcomed and titles and abstracts should be in the hands of the secretary at an early date, as well as names and addresses of those expecting to attend the gathering.

At the 1916 meeting in New York, 110 members were present, and 80 attended in Boston last year. It is hoped this record will be maintained at Cleveland.

MAJOR H. STUART HOTCHKISS.

H. STUART HOTCHKISS, vice-president of L. Candee & Co., the rubber shoe manufacturing concern at New Haven, Connecticut, is a major in the Army and stationed in London, England, as an assistant military attaché at the American Embassy. He was born October 1, 1878, in New Haven, and attended the Taft School, Watertown and Phillips Academy, Andover. After being graduated from the Scientific Department of Yale University, he entered the cost department of L. Candee & Co., of which his father is president, and became successively secretary and treasurer previous to accepting the vice-presidency. He has also been sales manager, treasurer, and president of The Naugatuck Chemical Co. and The General Rubber Co., and a member of the operating council of the United States Rubber Co. When Mr. Hotchkiss entered the service of the Government, he resigned all offices except that of the vice-presidency of the Candee company. He was first a captain in the Signal Reserve Corps, later becoming a major in the regular Army.

MAJOR H. STUART HOTCHKISS.

THE FOURTH NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

The Fourth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York City, during the week of September 23 this year. The advisory committee is composed of Charles H. Herty, chairman; Raymond F. Bacon, L. H. Baekeland, Ellwood Hendrick, Henry B. Faber, Bernard C. Heese, A. D. Little, William H. Nichols, R. P. Perry, H. C. Parmelee, G. W. Thompson, F. J. Tone, T. B. Wagner and M. C. Whitaker. Dr. Bacon is now head of the Chemical Warfare Section of the National Army and a member of General Pershing's staff.

The coming exposition will probably be the largest chemical exposition ever held, and each exhibitor is planning to make his exhibit of the greatest benefit to the country through the men who will see it, all of whom are bent upon a serious purpose—that of producing war materials in large quantities, and constantly increasing this production until the war has been won by the United States and its allies.

A movement is under way to show all exhibits of machinery in operation under actual working conditions. The products of the chemicals manufactured, as they enter into the world's commerce, will be exhibited as examples of what the chemist has produced in America since the world war began. Canada is taking this opportunity to present the materials it has available for development by the chemist and financier.

The program for the exposition will consist of a series of symposiums on the "Development of Chemical Industries in the United States, notably since July, 1914." Motion pictures will be shown of the industries that have been especially stimulated by the war, in so far as this can be done with propriety.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

AT the time of writing, the main topic of interest is the suggestion that rubber, like the bulk of other raw materials, shall have its price fixed by the Government and come under control. It is reported that the Government looks upon the proposal favorably, though it should be noted that in all other cases where similar action has been taken it was because of scarcity and a continually rising market, whereas in the case of rubber the opposite is the case. The complaint of the producers is that rubber is becoming too cheap, and they are desirous of control in order to prevent its becoming cheaper. Of course, doubt, not to say mistrust, of what American action may have in store for the Far Eastern industry, is at the root of the action of the Rubber Growers' Association. The restriction of output is not proving the panacea expected in some quarters because the members of the Rubber Growers' Association are not being backed up by those companies outside the association and the outsiders are in a position to reap undoubted advantages.

The paper shortage which is distracting editors here and, incidentally, journalists who are losing their means of livelihood, does not appear to exist in America, judging by the constantly increasing weight of THE INDIA RUBBER WORLD. Possibly America has some compensating war worry.

The marking up of prices of commodities of all kinds by shopkeepers because of the war has extended to the retail rubber goods stores. Of course, there is a shortage of many kinds of goods, owing to firms being so largely and generally engaged in government work, but this in many cases is not sufficient to account for the increase in prices.

Although many thousands of allotments are now to be found in or around all our large towns, the large prospective demand for garden hose has come to nothing, because it is only in rare cases that water has been laid on from the adjacent street mains. This is owing rather to scarcity of material and labor than to any disinclination of the authorities to let the water be used for this purpose.

The bottling and sterilizing of fruit by householders has led to a large demand for rubber rings, which are usually made of good quality red rubber. These rings are sold with the special glass-covered jars supplied for the purpose of preserving fruit.

COMPOSITION SOLES.

The demands of government work have largely reduced the capacity of rubber works to deal with ordinary civilian business, but in all sorts of works, both large and small, one hears of great activity in the new rubber sole business. One company is supplying a rubber sole which is to be fixed on with cement by the purchaser. In the majority of cases, however, the rubber sole is sewed on by the bootmaker or repairer, it being recognized that this is the more satisfactory procedure. In order to accomplish this stitching effectively, the soles are made of a composition of rubber and fibrous material, a composition which is easily obtained in the common grades by grinding up waste rubber containing insertion. The increasing cost of repairing leather boots is, of course, the main attraction of the rubber sole, and at the present time, with the holiday season at hand, it is not surprising that the makers are doing a big business. Indeed, I have heard of makers who are in the market for tons of the particular rubber they want, and are grumbling because of slow delivery. Considering the large and increasing amount of waste rubber, especially tires, now coming on the market from the scene of hostilities, delay in delivery can hardly be due to lack of material, but must be attributed rather to shortness of labor and other trade difficulties now too well-known to need specific mention.

AMERICAN GOVERNMENT RAINCOAT SPECIFICATIONS INCLUDE RECLAIMED RUBBER.

The reclaiming works report themselves as very busy, and as not being affected at all by the drop in raw rubber to two shillings per pound. It certainly is a fact that cheap rubber does not cause a falling off in the demand for reclaimed. It was not many years ago that rubber fell to 1*s.* 10*d.* per pound, and though certain authorities predicted the early restriction of the reclaiming industry, the only result was the enlargement of existing works. I certainly cannot find any perturbation of spirit as to the future among those responsible for carrying on our home industry, though I do not know what is the case in America.

A matter which is of considerale interest to the reclaimers on this side is the government specification for raincoats for the American army, as published in THE INDIA RUBBER WORLD of May 1. Here it is boldly stated that the rubber compound is to contain, or may contain, six per cent of the best light-colored reclaimed rubber of a quality equal to "Tacoma" or "Puritan" brand. These two brands are presumably proprietary articles and hereby get a free certificate of merit, a fact which has excited some comment on this side. This is the first time I remember seeng in print any rubber specification issued either from a public or private source, in which such materials as reclaimed rubber, oil substitute, and mineral rubber, have been advocated for use, and the conclusion is inevitable that the authorities are becoming increasingly aware of the fact that for many waterproof purposes there is no object in spending money on an expensive article if one of a lower quality costing less money will do all that is required. This is certainly being recognized by various European governments in the light of the valuable experience gained during the last three years, though I do not know that any of the Allies, except America, have removed from reclaimed rubber the stigma against which the manufacturers have for long protested. Of course, owing to the lack of raw rubber in the Central Empires, wonders have been done with substitutes and reclaims, and it is possible that the experience gained has not been wholly lost sight of by those who are not in the same predicament.

REMADE RUBBER.

Since the boom of eight or nine years ago in this material and its manufacture, which was taken up by various companies, it seems to have died a natural death. At least, one does not seem to hear anything about it now, though I do not wish to be understood as saying that no one is now carrying on the manufacture successfully; merely I have not heard anything of it. In this connection I was interested the other day to get a letter from a mill owner, referring to a valve of reformed rubber which I had made in 1910, and gave him to put in use. He now reports that it has proved equally as satisfactory as the raw rubber valves used in the same condenser. He says that there is apparently something to be said for reforming rubber, though he understands that all the reforming processes are now out of date, by which presumably he means abandoned. My own idea is that reformed rubber is pretty much the same thing as good-quality reclaimed rubber, and that it is the latter which has caused the abandonment of reforming. Again, the position of the various patents was such that if the process had proved of outstanding value, it was only the company or the

patentee with the longest purse who would have derived any benefit in the end after the lawyers had had their bit.

LONGEVITY OF RUBBER GOODS.

It appears, according to an American who was speaking of the problems awaiting solution by the chemist, that rubber goods must be made in such a way that they will have longer life than is ordinarily the case. As far as I can see, there is very little enthusiasm in the trade for the advent of the chemist who is to do away with repeat orders. What the manufacturer aims at is to produce goods quite as good as those of his competitor or perhaps rather longer-lived, but he does not want them to last forever. I once heard a waterproof goods salesman say that it was getting common for people to bring a mackintosh back after years of use and say that it was wearing out. His answer was that the complainant should do as he did with his hatter and tailor and order a new article, as justifiable in the ordinary course of events. The life of rubber goods will always be affected largely by the conditions of use, and that is why manufacturers so rarely give guarantees, but both in selling and purchasing circles there is a fairly clear idea as to how long rubber goods may be expected to last, this time varying very largely, of course, according to the particular goods and the uses to which they are put.

MOTOR HOODS.

It seems rather curious that there should be so much cutting in the price of waterproof canvas hoods to go on motor cars costing hundreds of pounds, while there is no sign of economy about other fittings. The fact is, however, that the rubber used in motor hoods is about the lowest in quality of anything that is spread. Its composition is, as a rule, quite unknown to the manufacturer, because it contains the scrapings of solution tins and of wet mixing rolls, etc. I heard of a firm that thought of undertaking this branch of business being told that it would be impossible to compete, as the weekly floor sweepings were not on a large enough scale. Against this inferiority in rubber, however, it must be noted that the brown canvas is of first quality, and this is really the waterproof agent, the rubber acting more as a cement to keep the two plies of canvas together. As a rule, motor hoods are unvulcanized, the fact that analysis may disclose free sulphur being due to the occurrence of this element in the scrapings and floor sweepings.

NOTES FROM THE NETHERLANDS.

THE UTRECHT FAIR OF 1918.

THE second Annual Fair for Dutch Industry, held at Utrecht, was twice as large as that held a year ago and may be considered a success.

Regarding the rubber industry at the fair, a very interesting report was published in "Handelsberichten," by Dr. A. van Rossem, director of the Netherlands Institute for Informing the Rubber Trade and Industry.

Practically all the important rubber factories were represented and many articles, formerly imported, were shown as Dutch manufactures. One of the attractions was a collection of transparent dipped goods, made by the cold-cure method. This is a new venture on the part of local manufacturers and one that seems to have been successful. Another new item was a tennis ball which was without the usual covering, owing to the shortage of felt.

The showing of valve casings deserves notice, since a good quality of the article has hitherto not been produced in Holland. Experience will have to prove whether the valve casings are satisfactory, as the process of manufacture differs completely from that employed elsewhere.

Gutta-percha and hard-rubber goods were well represented.

On the whole, Dr. van Rossem was of opinion that the exhibition proved Holland's ability to meet successfully foreign competition after the war, whatever that might be.

Meanwhile, however, the shortage of such materials as cotton fabrics for tires and hose, and of solvents, greatly hampers the progress of the local rubber industry.

NEW SHIP REQUISITION LAW.

The Second Chamber of the Netherlands Parliament has passed a law, to go into effect immediately, whereby the Minister of Agriculture, Industry and Commerce receives the power to requisition Dutch vessels of over 500 tons cargo-carrying capacity, for the purpose of carrying outward-bound cargo of all descriptions and for the purpose of conveying passengers on inward and outward voyages.

It is understood that several ships are to be requisitioned immediately for the purpose of carrying passengers and cargoes from Holland to the Netherlands East Indies. This circumstance, if true, will undoubtedly be greeted with delight by the colonies which have been without many articles usually imported from the mother country. On the other hand, Holland will probably be able to take over some of the accumulating stocks of raw materials, thus providing for her own needs and relieving what is becoming a serious condition in the East.

THE RUBBER TRADE.

The embargo on rubber imports, effective November 26, 1915, and on exports, effective January 26, 1916, remained in force during 1917. Leading brokers report that the stock on hand, in addition to the few shipments permitted to come in from the Dutch East Indies by steamers that had left prior to the date of the import prohibition, was sufficient to meet the domestic demand during 1917, and will also suffice for 1918 and possibly 1919.

Two sales were held during 1917, under supervision of the committee formed to supervise and control the sale and distribution of rubber to the domestic trade. The first took place on March 1, 1917, when prices were fixed for the next six months, best quality *Hevea* standard crêpe being fixed at $0.93. At the second sale, covering the period from September 1, 1917, to March 1, 1918, the price for the same quality was regulated at $1.10 per pound. During the previous year the prices varied from $1.60 to $2.08 per kilo (2.2 pounds). About 480 tons of rubber were sold and distributed by the committee.

CUSTOMS AND TARIFF.

FRANCE AND ALGERIA.

THE French Ministry of Commerce has decided that certain articles of foreign or colonial origin, which have been worked in England, are to be regarded for the purpose of the French import prohibition regulations, as of the United Kingdom. Among these goods are reclaimed and waste rubber, manufactured in the United Kingdom, and import licenses can now be obtained by English exporters from the French Customs Office in London.

VENEZUELA.

By decree of January 8, 1918, solid rubber tires with steel rims for motor trucks are to be admitted at the rate of $3.43 per 100 pounds.

ANGOLA.

A decree of November 12, 1917, imposes a surtax of 2 per cent of the duties on all goods imported into Angola, Portuguese West Africa, while a surtax of 3 per cent ad valorem is placed on rubber exported through any custom house other than that at Ambriz. All goods exported from the colony must pay an additional duty of 1 per cent ad valorem.

RUBBER FACTORY FOR GUATEMALA.

According to local press reports, a factory for the manufacture of waterproof cloth and of fine articles of rubber will soon be installed in Quezaltenango, Guatemala.

Rubber Planting Notes.

NOTES FROM THE NETHERLANDS EAST INDIES.

By Our Regular Correspondent.

AT this time when restricted rubber imports are the order of the day and thoughts naturally turn to the effect on the plantation, it is of interest to review the acreage devoted to this crop and the amount of rubber produced in the most important territories of the Netherlands East Indies.

Figures published by the Department of Agriculture show that in 1917 the areas were as follows:

	Java.	Sumatra and Other Territories.	Totals.
Rubber alone	24,043.6	80,509.7	104,553.3
Rubber and one other crop	6,540.8	14,571.9	21,112.7
Rubber and two other crops	3,458.1	1,202.9	4,661.0
Rubber and three other crops	482.6	.....	482.6
Rubber interplanted with other crops	73,058.3	32,125.1	105,183.4
Totals, hectares	107,583.4	128,409.6	235,993.0
Equivalent in acres	265,700.0	317,200.0	582,990.0

This total has been considered too low by W. J. V. D. Leemkolk, who places the figures at 620,000, which is nearer that given by the Rubber Growers' Association.

The Department of Agriculture further found that the acreage in bearing totaled 147,800 acres in Java and 193,200 acres in Sumatra and nearby territories; in all, 341,000 acres. The yield per acre is about 285 pounds, which is a low average when compared with 330 pounds in the British colonies, but is due to the fact that there are so many estates where thinning out is still in progress and also to the number of small estates where the average is rather unsatisfactory.

The above acreages are capitalized as follows:

	Nominal.	Issued.
England florins	222,215,533	181,701,337
Netherlands	252,396,000	173,147,750
Belgium	41,425,000	28,799,500
America	31,025,000	23,753,550
France	24,685,000	21,100,000
Germany	9,737,000	7,111,000
China	2,680,000	2,680,000
Switzerland	1,750,000	1,550,000
Totals florins	585,913,533	439,843,137

A florin is equivalent to $0.402.

The total capital issued, taken in round numbers, is equivalent to $176,000,000 for 620,000 acres planted and, say, 350,000 acres in bearing; thus the capitalization per planted acre amounts to $284, and to $500 per acre in bearing. If the average market price per pound of rubber is calculated at about $0.30, an acre in bearing yields interest at the rate of 15 per cent.

GOVERNMENT'S GUTTA PERCHA ESTATE AT TJIPETIR.

The report from this enterprise shows that in 1916 the area under *Hevea* was 400 bouws and that planted to gutta percha, 1,354 bouws. Gutta percha suffered as usual from attacks of caterpillars, and during the year under review, from the visits of cock-chafers also.

The yield of leaves amounted to 3,103,312 kilos against 2,714,960 kilos in 1915, or 2,292 and 1,991 kilos respectively per bouw.

At the factory connected with the estate 3,001,142 kilos of leaf were treated and yielded 51,356 kilos of gutta percha, while 103,170 kilos of leaf were shipped to the factory of the Netherlands Gutta Percha Co., Singapore. The figures for 1915 were: 2,609,340 kilos, yielding 47,265 kilos of gutta percha 105,620 kilos of leaf sent to Singapore.

During 1916, the number of trees tapped was 68,961, and the crop amounted to 49,375 kilos of dry rubber.

NEW INVENTIONS.

According to the "Preangerbode," a patent has been applied for on a latex cup which does not overflow during rainy weather. The new cup has been demonstrated on one or two large plantations in Java and it appears to have been proved that heavy rains do not affect the latex contained in the cup; the water drips off and the latex remains behind. It is further claimed that the new cup is neither heavier nor more expensive than that now used.

Another invention is that of coagulating rubber latex without the aid of chemicals. Rubber prepared according to this method, which is kept secret, is said to have a good appearance, to vulcanize rapidly and, on analysis at the experiment station, was found to possess all the properties of rubber prepared in the ordinary way.

THE EAST COAST OF SUMATRA.

The 1917 statistics published by the A. V. R. O. S. (East Coast of Sumatra Rubber Planters' Association) covering the areas and yields of estates of members are interesting as showing the extent of the rubber industry in Sumatra. The average under *Hevea* rubber was 241,732 acres and the yield, 29,939,175 pounds. The yield of *Ficus* rubber was 33,025 pounds, bringing the total to 29,972,200 pounds or about 13,392 tons.

The total production of rubber during 1917 on the east coast of Sumatra was 21,092 metric tons, of which 827 were plantation *Ficus*, 13 wild *Ficus* and the remainder *Hevea;* of the whole, America and Canada took 14,279 metric tons. At the same time Tapanœlie, a district on the northwest coast, exported 1,094 metric tons, all *Hevea* excepting 5 metric tons of *Ficus;* America's share from this source was 111 metric tons.

PESTS AND DISEASES DURING 1917.

The heavy rains during the latter part of 1916 and the earlier months of 1917 caused serious attacks of canker. Leaf diseases, Brown bast, *Phytophthora Faberi,* and "djamoer oepas," were reported by practically all the experiment stations. Little trouble was given by animal pests, although borers were again noticed among *Ficus,* without, however, causing grave harm.

Native holdings in Palembang were comparatively free from disease, but in Atjeh various forms of canker were present to a large extent on all estates in bearing, and termites were also repeatedly found.

PROBABLE ERROR IN FIELD EXPERIMENTATION WITH HEVEA.

The "Archief voor de Rubbercultuur in Nederlandsch-Indië" publishes an interesting paper on the "Probable Error in Field Experimentation with *Hevea,*" by O. F. Bishop, J. Grantham and M. D. Knapp.

These authorities point out that the results of a single experiment are frequently misleading and that the yield from equal-sized plots, even when similarly treated, show differences, often resulting from such natural causes as variation of the individual, difference of site, manipulation, etc. These normal variations must be allowed for in determining the significance of results, and this can be done by the use of a single numerical quantity called the "probable error."

To establish a probable error, records of yields from a large number of similarly treated plots, over a period of not less than one year, are required. Records of a large number of groups of plots, may also be used, provided that the plots in each group have had similar treatment.

Owing to the peculiarities of the rubber crop, it is questionable whether a standard probable error may be generally applied. Wood and Stratton found that the probable error for annual agricultural crops may be taken as five per cent. The study under review places the figure for rubber in the neighborhood of 7.5 per cent.

The danger of using preliminary records over short periods to interpret the results of experiments, without allowing for a

probable error, is brought out. The authors further advise that field experiments with rubber should be under scientific control if full advantage is to be taken of results and costly mistakes avoided.

EXPORTS OF GUTTA JELUTONG.

The exports of gutta jelutong from the Netherlands East Indies during 1916 show an increase, having been 9,564 tons, as compared with about 7,800 tons in the two previous years.

THE CHICLE INDUSTRY OF GUATEMALA.

GUATEMALA gum chicle is obtained almost exclusively from the Department of Peten, an extremely swampy and unhealthy country bordering on Mexico and British Honduras and practically unknown except to those employed in the chicle and mahogany industries.

About $250,000 United States gold is said to be invested in the chicle industry of this territory. No one is allowed to collect chicle without a government concession. Up to the present, four such concessions have been granted and they cover the best chicle lands of the country. The value of good chicle land is estimated at $1,500 to $2,000 United States gold per caballeria of 31⅓ acres. Nearly all the land, however, is owned by the government of Guatemala, the concessionaries being only entitled to gather the chicle. No steps have as yet been taken either towards cultivation or reforestation.

Peten is considered to be an almost inexhaustible source of this gum. According to statements of concessionaries, not only has no formal estimate of the chicle in this region ever been attempted, but in many cases even owners of land grants are ignorant of the exact amount of chicle growing on their holdings. The tree, which bears a luscious brown fruit, is found chiefly at altitudes ranging from 500 to 2,000 feet. In some places 25 to 50 trees are found per acre, while in others they are greatly scattered.

Chicle trees are boxed and cupped in a manner similar to the "boxing" of pine trees to extract turpentine or resin, the operation occurring three times in as many years. As much as 100 pounds of crude gum may be obtained from a large tree; less from smaller and younger ones. This gum is boiled in large iron pots, poured into wooden boxes with a capacity of 80 pounds each and allowed to harden. It is then sent to the port of shipment where it is taken out of the boxes and packed in bags for export.

Flores is the principal chicle market of Guatemala; from there the bulk is transported to Belize, British Honduras, whence it is shipped to the United States. By the time it reaches these coasts, a quintal of 101.4 pounds of gum is worth from $33 to $40, as against $16 to $20 United States gold in Flores. An export tax of $7 United States gold enters into this increase, to which must be added freight from Belize to New York or New Orleans, at the rate of about $1 gold per 100 pounds.

Before the war, part of the chicle went to England, but at present practically the whole amount goes to the United States. The chicle exports from Peten to the United States for the years 1915 and 1916 were 7,238 quintals, valued at $231,624, and 4,071 quintals, valued at $130,302, respectively.

The addresses of the leading exporters of chicle in Guatemala and British Honduras may be obtained from the Bureau of Foreign and Domestic Commerce or its district and cooperative offices by referring to file No. 86719.

LITTLE WILD RUBBER FROM KATANGA, BELGIAN CONGO.

A report from the Acting British Vice-Consul at Elizabethville, Belgian Congo, states that very little wild rubber is now collected from the Katanga. The average annual export is only 20 to 25 tons.

BRAZILIAN NOTES.

THE rubber problem is providing an interesting time for all concerned. The Banco do Brazil seems to be hesitating whether to buy or not to buy. During March, it purchased fair quantities of the fine grades of Pará; in April it was practically absent from the market, but made some show of reappearing during the following month.

The Government is apparently trying to get a really clear view of the situation and has been thinking hard whether valuation—in this case artificially maintaining prices by buying in large quantities and holding the stock until favorable prices are obtainable—is the best solution. It appears to have reached the conclusion that a better way might be to improve the quality of rubber and to lower the cost of production, and it has, therefore, recommended the Cerqueiro Pinto method of coagulating rubber by means of chemicals other than acetic acid. This method was introduced a few years ago, as will be remembered, but has not made much headway, the majority of producers and merchants favoring rubber prepared in the older, if more primitive way. And it hardly seems probable that the attempt will be more successful at present, as the general opinion seems to be that, given the peculiar conditions under which rubber in Brazil is collected, and the generally existing conditions, it would be difficult and even risky to try comparatively new methods. This opinion has been voiced by the "Associação Commercial" of Manaos, in a pamphlet recently issued.

RUBBER TO THE UNITED STATES.

It is reported that a commission of exporters from Pará has had a conference with the Governor of the State of Pará, requesting his intervention and that of the Minister for Foreign Affairs and the Brazilian Ambassador in the United States to obtain permission for prompt shipment to New York without license, of about 3,000 tons of rubber warehoused at Pará.

CAMPAIGN AGAINST MALARIA.

In view of the fact that proper development of the interior of Brazil has been greatly hampered by the prevalence of malaria and other malignant diseases, the decrees issued by the President of Brazil on May 1, one for establishing a sanitary and prophylactic service to prevent the spread of malaria, and the other authorizing the Minister of Justice and Interior to organize medical commissions to begin a rural prophylactic service for combatting the destructive epidemics of the interior of Brazil, will be greeted with general satisfaction.

PLANTATION RUBBER AND BALATA IN BRITISH GUIANA DURING 1916.

THE report of the Department of Science and Agriculture for the year 1916 is in many respects a gratifying one. Thus, the area returned as being under cultivation of rubber is 4,844 acres, as compared with 4,687 acres in 1915. This acreage is divided over the various districts as follows: Demerara, 2,320 acres; Essequibo, 1,910 acres; Berbice, 614 acres.

The export of rubber increased from 4,590 pounds in 1915 to 15,570 pounds in 1916, a substantial advance.

PROGRESS AT THE EXPERIMENT STATIONS.

Results obtained with the growing and preparation of Pará rubber at the government experiment stations have been highly satisfactory. At Issorora the crop obtained from 400 trees varying in age from six to eight years, during one year, was 955 pounds of dry rubber, or 2½ pounds of dry rubber per tree.

The cost of collecting this rubber was a little less than seven cents a pound. The price obtained in London was generally the highest ruling on the day of sale—60-68 cents a pound for biscuits and 42 cents for scraps and lower grades. Similar prices were secured for a portion of the Onderneeming crop of 1,493 pounds of dry rubber.

The average rate of growth of trees at Onderneeming, Issorora, and Marlborough, is shown in the following table:

GIRTH IN INCHES AT 3 FEET FROM THE GROUND.

Age of Trees in Years.	Onderneeming.	Issorora.	Marlborough.
1	3.0	2.0	2.0
2	8.7	4.5	7.0
3	12.7	8.0	9.0
4	17.7	11.0	13.0
5	21.0	16.5	15.5
6	22.3	19.5	17.0
7	24.0	23.0	23.0
8	25.2	25.0	24.0
9	28.7	27.5	....
10	30.0	....	....
11	32.4	....	....
12	35.7	....	....
13	40.7	....	....
14	44.2	....	....
15	45.5	....	....

In 1916, as in the year before, no foreign seed was imported, since the local supply was sufficient to meet the demand. The total number of plants sold was 27,200.

DISEASES AND PESTS.

The South American leaf disease (*Fusicladium macrosporum*) continues to cause serious damage and in certain districts the ravages caused by it dwarfed the importance of other pests and diseases, though in most cases a marked improvement in the condition of the trees was observed. Needless to say, efforts at extending the areas under rubber were greatly discouraged. The Government Farm, Onderneeming, has again been quite immune from any attack.

BALATA.

Judging by the results of analyses of samples of balata collected during the 1916 season, the average quality was not equal to that of balata obtained in 1915.

The results of these analyses are given in the following tables:

BRITISH GUIANA BALATA. AIR-DRIED CONDITION. SAMPLES ARRANGED IN ORDER OF GUTTA CONTENT.

				Impurities.			
				Vegetable.			
	Location of Sample.	Water.	Resin.	Gutta.	Proteids.	Other Matters.	Mineral.	Color and Remarks.
1.	Courantyn District	2.6	34.4	48.1	4.2	9.9	.8	Dark brown.
2.	Supenaam	6.0	32.2	47.1	1.8	6.3	.6	Light mauve. No air cells.
3.	Siparuni	2.4	37.5	47.0	4.4	8.0	.7	Light brown. No air cells.
4.	Berbice River	2.9	39.7	45.5	3.4	7.8	.7	Light color (brown). No air cells.
5.	Cuyuni River District	3.1	35.2	44.9	4.3	11.2	1.3	Dark brown. Surface slightly moldy.
6.	Pomeroon River	3.5	38.8	44.5	2.1	10.2	.9	Brown, white. Contains air cells.
7.	Takatu River	2.8	38.5	42.7	2.3	12.8	.9	Light brown in center to dark at edges.
8.	Rupununi River	2.8	37.2	42.4	5.0	11.9	.7	Light purple.
9.	Lower Essequibo	3.2	41.6	42.3	3.2	8.8	.9	Dark color (purple). No air cells.
10.	Sample 119 lbs. forfeited from Ferdinand	3.1	37.9	42.8	3.9	8.3	4.0	Light brown. Rather soft in texture.
11.	Sample 150 lbs. forfeited from Bowen	4.0	39.6	38.9	5.2	6.9	5.4	Dark brown. Surface clammy.
12.	Venezuelan	7.2	37.0	29.9	1.5	7.0	17.4	Smoke colored. Brittle.

BRITISH GUIANA BALATA. SAMPLES ARRANGED IN ORDER OF GUTTA CONTENT IN DRY MATTER.

				Impurities.		
				Vegetable.		
	Location of Sample.	Resins.	Gutta.	Proteids.	Other Matters.	Mineral.
1.	Supenaam District	40.6	50.1	1.9	6.8	.6
2.	Courantyn District	35.4	49.4	4.3	10.1	.8
3.	Siparuni District	38.5	48.2	4.5	8.1	.7
4.	Berbice River District	40.9	46.9	3.5	8.0	.7
5.	Cuyuni River	36.4	46.3	4.4	11.6	1.3
6.	Pomeroon River	40.2	46.1	2.2	10.6	.9
7.	Takatu District	39.6	43.9	2.4	13.2	.9
8.	Lower Essequibo District	43.0	43.8	3.3	9.0	.9
9.	Rapununi District	38.3	43.6	5.1	12.3	.8
10.	119 lbs. forfeited from Ferdinand	39.1	44.1	4.0	8.7	4.1
11.	150 lbs. forfeited from Bowen	41.3	40.5	5.3	7.2	5.7
12.	Venezuelan	39.0	32.9	1.7	7.5	18.7

As judged by the standards suggested by the 1915 investigation, samples 11 and 12 were adulterated low-grade balatas; 11 probably, and 12 certainly, containing the latex of trees other than true *Mimusops* balata. Samples 9 and 10 contain undesirably high proportions of impurities; those in 9 having certain constituents of the latex retained in unduly high amount by want of care in preparation, whilst those in 10 are mineral matter foreign to balata latex. Sample 5 also contains a high proportion of impurities.

However, the above figures confirm the deductions made in 1915 concerning the composition of normal British Guiana balata —that it should contain 45 per cent of gutta and 38 per cent of resin, any proportion of the latter above 38 per cent being regarded as an impurity. It is safe to assume that on the water-free basis less than 44 per cent of gutta, or resin in excess of 42 per cent or total impurities in excess of 15 per cent indicates, as the case may be, either low-grade balata such as dabray bottoms or admixture with latex other than that of true balata.

PACKING RUBBER.

OWING to recent shipping restrictions, the question of packing rubber is receiving a considerable amount of attention in exporting centers. Ceylon papers have lately devoted much space to correspondence on this subject and various suggestions have been submitted.

Baling has been proposed by more than one person, but there seems to be many disadvantages connected with this mode of shipping rubber. Questioned as to his views on baling, the manager of a large plantation company declared that though encouraged to do so by his firm, he had never packed rubber in this way. Smoked sheet and lower grades of scrap, he said, would not be much affected by this method, but in the case of crêpe, which is always used for high-class work, transport in chests would still be necessary. In conclusion, he stated that, in any event, baling was but a war measure and that packing in chests would be resumed as soon as the price of chests went down and cargo space was again plentiful.

A representative of a well-known firm of Colombo merchants said that a consignment of rubber had been sent to England baled with matting and pressed. The bales weighed about 200 pounds net to five cubic feet, and there were two bands of hoop-iron around them. This consignment, however, was turned down by the wharfingers of London, who were unable to separate the sheets to sample the rubber. A new lot has been shipped, packed in sacking, similar to that used for cocoa, but as yet the result of this method is not known.

A Fort broker observed that he saw no reason why smoked sheet should not be baled. Of course, the bags would have to be free of loose fibers. Good canvas bags, such as were used by the Russians for shipping tea, would be suitable and would have the advantage that they could be used two or three times.

One correspondent called attention to the fact that a certain company in the Federated Malay States had its crêpe rolled on a core, and when the desired diameter was reached, the core was removed, leaving a solid roll of rubber which for transport was covered first with jackinette and then with hessian. It is claimed that the roll contains considerably more rubber than a chest of the same size and that sheet, when made in long lengths in a coagulating tank, can be rolled in the same manner. The writer adds that a firm of London brokers, asked for their opinion on this method, reported that the idea was sound and carefully thought out.

At a meeting of the Industries Commission, Ceylon, it was reported that experiments were being carried out with regard to the possibility of utilizing palmyra mats such as are made at Jaffna, as a substitute for packing chests for rubber.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED MAY 14, 1918.

NO. 1,265,773. Tire for vehicle wheels. J. Guerrero, Paris, France.
1,265,787. Demountable rim. C. S. Johnston, Glendive, Montana.
1,265,909. Resilient tire. W. L. Harvey, assignor to Harvey Tire & Rubber Co., both of Chicago, Illinois.
1,265,910. Mixed gas administrator, with rubber gas bag and respirator tube. J. A. Heidbrink, Minneapolis, Minnesota.
1,266,006. Cable construction. H. W. Fisher, Huguenot Park, New York, assignor to Standard Underground Cable Co., Pittsburgh, Pennsylvania.
1,266,054. Protective armor for pneumatic tire. J. V. Royal, Wollaston, assignor of one-half to J. L. Layne, Boston—both in Massachusetts.
1,266,064. Pneumatic tire. J. J. Sexton, Columbus, Ohio.
1,266,074. Crutch having turnable arm-rest with rubber-tired roller. C. H. Sparrow, Clapham Junction, London, England.
1,266,100. Composition of matter to resist wear and anti-skid device embodying the same. H. P. Brown, New York City.
1,266,127. Tire. G. L. Kavanagh, Montreal, Quebec, Canada.
1,266,141. Presser-bar control for fountain pens. F. H. Mooney, assignor to The Conklin Pen Manufacturing Co.—both of Toledo, Ohio.
1,266,296. Toy balloon. B. M. Mark, Joplin, Missouri.
1,266,324. Rubber washer. W. F. Schacht, Huntington, Indiana.
1,266,338. Balloon valve. C. F. Smyth, assignor to Connecticut Aircraft Co., both of New Haven, Connecticut.
1,266,361. Rubber tire. H. N. Wayne, Los Angeles, California.
1,266,403. Pneumatic tire casing. A. Cartheuser, West Orange, New Jersey.
1,266,410. Respirating appliance. P. A. R. Conrad, assignor to Life Saving Devices Co., both of Chicago, Illinois.
1,266,416. Fitting for flexible hose. J. B. Davis, Springfield, assignor to Gilbert & Barker Manufacturing Co., West Springfield—both in Massachusetts.
1,266,481. Automatic typewriter eraser. F. A. Johnson, University Place, Nebraska.
1,266,482. Air cushion. Harris Kamrass, New York City.

ISSUED MAY 21, 1918.

1,266,578. Rubber heel-lift for boots and shoes. A. Gambino, Boston, Massachusetts, assignor to United Lace & Braid Manufacturing Co., a corporation of Rhode Island.
1,266,654. Vehicle wheel with tire and chamber for liquid. J. C. Beale and J. Hayes, Kansas City, Missouri.
1,266,655. Hose clamp. C. D. Bennett, Goose Creek, Texas.
1,266,698. Solid tire tread. C. Macbeth, Birmingham, assignor to The Dunlop Rubber Co., Limited, Westminster—both in England.
1,266,722. Garter. L. S. Schram, Chicago, Illinois.
1,266,789. Laminated fabric. Ludwell H. Gilmer, assignor to L. H. Gilmer Co.—both of Philadelphia, Pennsylvania.
1,266,844. Method of making wheels. W. J. P. Moore, New York City.
1,266,852. Cushion tire. J. W. Pepple, San Antonio, Texas.
1,266,919. Wind-shield cleaner. W. H. Clifford, San Francisco, California.
1,266,936. Rubber heel. S. J. and A. A. Harris, Randolph, Massachusetts.
1,266,967. Method of making pneumatic tires. N. W. McLeod, St. Louis, Missouri.
1,266,995. Undergarment, with elastic leg portions. G. E. Rutledge, assignor to Vassar Swiss Underwear Co.—both of Chicago, Illinois.
1,267,063. Inner tube with outstanding ribs on tread. C. H. Duckett and C. J. Fitzpatrick, Washington, District of Columbia.
1,267,066. Adjustable rectal dilator. T. J. Flack, St. Louis, Missouri.
1,267,086. Inflatable life-saving suit. W. Kostiw, assignor of one-half to H. Kudlak—both of Buffalo, New York.
1,267,112. Demountable rim. L. H. Perlman, New York City.
1,267,140. Buoyant garment with inflatable bags. J. S. Stockman, South Shields, England.
1,267,147. Vehicle-wheel tire. W. F. Troast, assignor of one-half to F. E. Trout—both of Lancaster, Pennsylvania.
1,267,176. Nursing bottle. A. R. Britt, Jackson, Mississippi.
1,267,217. Traction tire. T. Hattori, Fellows, California.
1,267,220. Game apparatus. T. Heckmann, Hermann, Missouri.
1,267,230. Resilient vehicle tire. I. N. Keim, Mount Holly, New Jersey.
1,267,231. Combined tire valve and pressure governor. L. F. Kerndl, Lansing, Michigan.
1,267,268. Automobile wheel. J. Renwick, Emmett, Idaho.
1,267,269. Anti-skid mat for tires. J. Rettel, Detroit, Michigan.
1,267,270. Vacuum cup. R. P. Rheinlander, St. Louis, Missouri.
1,267,288. Ink sack deflating device for fountain pens. T. Tanimura, Rock Springs, Wyoming.
1,267,305. Hose-nozzle support. S. E. Balcom, Salt Lake City, Utah.
1,267,320. Confection having center layer of chewing gum. F. H. Fries, assignor to Venola Co.—both of Winston-Salem, North Carolina.
1,267,335. Hose-pipe coupling. W. R. Porter, Prince Bay, New York, assignor to The S. S. White Dental Manufacturing Co., Philadelphia, Pennsylvania.

REISSUE.

14,474. Self-filling fountain pen. F. Reisenberg, assignor by mesne assignments to H. L. Carman—both of New York City.

ISSUED MAY 28, 1918.

1,267,360. Guard for tires. A Bertram, Westfield, New Jersey.
1,267,372. Envelop opener. L. Brudick, Ralston, Pennsylvania.
1,267,505. Resilient tire for vehicle wheels. G. A. A. Boerner, Amsterdam, Netherlands.
1,267,544. Anti-skid for wheels. R. W. Haubner, Somerville, Massachusetts, assignor by mesne assignments to Non-Skid Co. of America, Boston, Massachusetts.
1,267,600. Tire valve. S. C. Sladden, New York City.
1,267,616. Syringe. M. Abramovitz, Baltimore, Maryland, assignor to D. B. Levy, New York City.
1,267,624. Fountain pen. G. F. Brandt, assignor to The Moore Pen Co.—both of Boston, Massachusetts.
1,267,666. Respirator helmet. F. E. Jackson, Chorlton-cum-Hardy, England.
1,267,738. Elastic wheel tire. G. W. Beldam, Ealing, England.
1,267,796. Foot-arch pad composed of sponge rubber. S. L. Pakas, Spuyten Duyvil, New York.
1,267,799. Cap with adjustable portion of material cut on the bias and covered with elastic fabric. M., B., and H. Perlman, Brooklyn, New York.
1,267,848. Armored interliner for tires. J. W. D. Carslaw, Prospect, assignor of one-half to J. H. Loeser, Louisville—both in Kentucky.
1,267,955. Pencil eraser attachment. E. B. Balch, Newburyport, Massachusetts.
1,267,985. Tire for motor-vehicle wheels. H. R. Davidson, Oakdale, California.
1,268,043. Pneumatic tire. A. M. Myers, Harrisburg, Pennsylvania.
1,268,059. Seam for raincoats. R. R. Sandford, assignor of one-half to The New London Manufacturing Co.—both of New London, Ohio.
1,268,071. Tire tool. T. C. Holliday, Canton, Mississippi.
1,268,078. Cushion tire for vehicle wheels. H. M. Lambert, Portland, Oregon, assignor to Lambert Multiplus Co., Phoenix, Arizona.

ISSUED JUNE 4, 1918.

1,268,179. Inflatable floating equipment. F. R. Swanson, Marshall, Minnesota.
1,268,185. Mode of and means for assembling pneumatic or elastic tires in relation to rims or wheels. H. W. van Meeteren, assignor of one-third to Amos Edwards and one-third to H. Headley—all of Birmingham, England.
1,268,199. Aluminum shoe with elastic connecting section between heel and toe sections. M. Zavarkin, East Brimfield, Massachusetts.
1,268,206. Self-filling fountain pen. M. Borbeck, assignor of one-half to H. A. Meyer and E. A. Burgess—all of Sioux City, Iowa.
1,268,210. Rim for vehicle wheels. R. S. Bryant, Akron, assignor by mesne assignments to The Standard Parts Co., Cleveland—both in Ohio.
1,268,211. Rim for vehicle wheels. R. S. Bryant, Akron, assignor by mesne assignments to The Standard Parts Co., Cleveland—both in Ohio.
1,268,258. Armor for pneumatic tires. W. H. Manuel, assignor of one-half to J. A. Chandler—both of Terre Haute, Indiana.
1,268,298. Cushion tire and process of manufacture. J. L. Swartz, Akron, Ohio.
1,268,367. Demountable rim. B. R. Lee, Chattanooga, Tennessee.
1,268,402. Armor for pneumatic tires. J. J. Snigo, Pittsburgh, Pennsylvania.
1,268,408. Composite shoe sole with tread and shank of rubber. W. Tirrell, Brockton, Massachusetts.
1,268,432. Heel seat of sponge rubber in a stiffener for boot and shoe heels. J. Cavanagh, Boston, Massachusetts, assignor by mesne assignments, to United Shoe Machinery Corp., Paterson, New Jersey.
1,268,437. Solid tire. L. Clough, assignor to the Firestone Tire & Rubber Co.—both of Akron, Ohio.
1,268,467. Tire-valve connection and gage. C. I. Jacobson and A. L. Fowler, Los Angeles, California.
1,268,470. Rubber teething-device for infants. C. L. Johnson, San José, California.
1,268,493. Tractor wheel, with solid rubber tire. F. J. Roth, San Francisco, California.
1,268,525. Separable demountable rim. W. M. Wirth, assignor to St. Louis Welding & Manufacturing Co.—both of St. Louis, Missouri.
1,268,526. Demountable rim for wheels. W. M. Wirth, assignor to St. Louis Welding & Manufacturing Co.—both of St. Louis, Missouri.
1,268,527. Resilient tire. S. J. Woods, Newport, Rhode Island, and J. Polar, Cleveland, Ohio.
1,268,536. Tire patch. H. C. Atwood, assignor to Durkee-Atwood Co.—both of Minneapolis, Minnesota.
1,268,542. Tire-rim reducing device. C. Bullivant, assignor of one-half to W. W. Zent—both of Spokane, Washington.
1,268,544. Tooth brush. L. N. Cates, St. Louis, Missouri.
1,268,616. Device for fastening overshoes or rubbers to shoes. G. F. Rauch, Bijou Hills, South Dakota.

Chemical Patents will be found on page 656. Machinery Patents on pages 656-659.

1,268,629. Hub of vehicle wheels with rubber cushioning disk. A. E. Russell, Windsor, and W. G. Charley, Melbourne, Victoria, Australia.

1,268,696. Respirator or inhaler. R. Donald, London, England.

1,268,761. Hose band. W. A. Osley, Springfield, Massachusetts.

1,268,798. Demountable wheel rim. T. S. York, assignor to L. H. Harriman, trustee for said York. W. Scott Peters, S. E. Cass and F. M. Whitehouse—all of Haverhill, Massachusetts.

1,268,799. Collapsible rim. T. S. York, assignor to L. H. Harriman—trustee for said York, W. S. Peters, S. E. Cass and F. M. Whitehouse—all of Haverhill, Massachusetts.

1,268,806. Life-saving apparel. M. P. Vukosav, West Oakland, California.

THE UNITED KINGDOM.

ISSUED JUNE 5, 1918.

114,596. Ventilating seam for waterproof garments. C. B. Shane, 222 West Monroe street, Chicago, Illinois, U. S. A.

114,597. Base for tires comprising coir fiber impregnated with rubber. Coir Tyre Co. and G. D. Rose, 56A Mosley street, Manchester.

114,620. Drying apparatus with rubber couplings. S. H. Meihuizen, Veendam, Holland.

114,642. Rubber-covered driving belts. T. Sloper, Southgate, Devizes, Wiltshire.

114,657. Vehicle wheels with or without single or twin elastic tires. J. R. Churchill, 22 Abbeyfield Road, Sheffield.

114,710. Handle of ebonite, etc., for car-hanger straps. M. Yamasaki, 535 Shimobu-machi, Himeji, Japan.

ISSUED JUNE 12, 1918.

147,747. Cushion tires. A. D. Daigre, 29 Route de la Révolte, Levallois-Perret, Seine, France.

114,754. Apparatus for irrigating wounds. W. H. Taylor, 2 Bedford Place, Bloomsbury Square, and J. E. Arnold, 6 Giltspur street—both in London.

114,769. Wheel-tire air tube. A. B. Shaw, 22 Bowers street, Medford, Massachusetts, U. S. A.

114,782. Door checks having rubber washers. W. H. G. Spindler, Kestor, Copperkins Lane, Chesham Bois, Buckinghamshire.

114,797. Paving block, comprising a concrete base and a rubber-faced metal plate. G. Anderson and Leyland & Birmingham Rubber Co., 24 Duke street, Aldgate, London.

114,877. Spring wheels with rubber cushions. F. A. Frommann and International Motor Truck Wheel Corp., 137 South La Salle street, Chicago, Illinois, U. S. A.

114,889. Surgical aspirator. F. W. H. Robson, 1A Howard Road, Southampton.

ISSUED JUNE 19, 1918.

114,952. Elastic support for artificial legs. A. Bone, 214 Berkamsted Road, Chesham, Buckinghamshire.

114,955. Convertible ground sheet and cape. W. and H. Broughton, Entwisle Road Mill, Rochdale.

114,959. Driving belts formed of layers of woven wire fabric and rubber. A. T. Edwards, 109 Loop street, Cape Town, South Africa.

115,041. Composite rubber and leather shoe-sole. Société Française du Cuir Armé, 57 rue Alexandre Dumas, Paris.

NEW ZEALAND.

ISSUED MAY 2, 1918.

39,085. Vehicle tire. E. Sterns, 1135 Lawn avenue, St. Louis, Missouri, U. S. A.

39,509. Attachable rubber wearing-surface for tires. J. H. Gill, High street, Dunedin, New Zealand.

39,600. Milking-machine teat cup. H. Shaw, Wanganui, New Zealand.

ISSUED MAY 16, 1918.

38,711. Rubber shield to limit expansion of teats, for use with milking machine.

38,726. Respirator or inhaler. R. Ronald, 30 Parliament Hill Mansions, Highgate Road, London, England.

39,483. Milking machine teat cup. The De Laval Separator Co., 165 Broadway, New York City, U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

486,229. (July 13, 1917.) Resilient wheel for all kinds of vehicles. G. Bouilhiet.

486,235. (July 20, 1917.) Improvements in tires. Sterns Tire & Tube Co.

486,283. (September 14, 1916.) Ink-roller for machine printing colored paper. J. B. Labedan.

486,288. (September 14, 1916.) Rim with expanding bottom and demountable heelpiece. L. Fournaud.

486,298. (July 27, 1917.) Non-skid device for vehicle wheels. I. Brook.

486,300. (July 27, 1917.) Resilient wheel. G. Arguillière.

486,344. (August 1, 1917.) Improvements in resilient wheels. J. L. Garver.

486,428. (August 10, 1917.) Inner tube. J. B. Jeffries.

486,468. (August 16, 1917.) Vehicle wheel. Detroit Pressed Steel Co.

486,469. (August 16, 1917.) Vehicle wheel with demountable rim. Detroit Pressed Steel Co.

TRADE MARKS.

THE UNITED STATES.

NO. 106,107. The word WEAR-RITE—rubber shoes. Converse Rubber Shoe Co., Malden, Massachusetts.

109,494. The words BLUE RIBBON—belting, hose, machinery packing, and non-metallic tires. The Conrad Rubber Co., Cleveland, Ohio.

109,545. The word SPLASHER—raincoats. Weber & Heilbroner, New York City.

104,313. Representation of a conventionalized Maltese cross—belting, hose, machinery packing, and non-metallic tires. The Gutta Percha & Rubber Manufacturing Co., New York City.

106,986. Representation of a red disk on one end of a fountain pen—fountain pens. The Evans Dollar Pen Co., Waterloo, Iowa.

107,651. The word PRUDENTIAL—fountain pens, rubber erasers, etc. B. L. Makepeace, Boston, Massachusetts.

108,333. The words KOLD PROSSO—fruit jar rubbers. Smalley, Kivlan & Onthank, Boston, Massachusetts.

108,476. The word SOVEREIGN—rubber hose, rubber belting and asbestos packing. Dominion Asbestos & Rubber Corp., New York City.

108,477. The word DOMINO—rubber hose, rubber belting, and asbestos packing. Dominion Asbestos and Rubber Corp., New York City.

108,479. The word DOMINION—rubber hose, rubber belting and asbestos packing. Dominion Asbestos and Rubber Corp., New York City.

108,464. The word VULK-SEAL—rubber putty. W. H. Tomlinson & Co., Bay City, Michigan.

106,739. The word GRO-NUPS—rubber, leather and canvas shoes and hosiery. W. Hahn & Co., Washington, District of Columbia.

108,475. The word REGENT—rubber hose, rubber belting and asbestos packing. Dominion Asbestos and Rubber Corp., New York City.

THE UNITED KINGDOM.

380,885. Representation of a spray of lily-of-the-valley with the word LILY on a superimposed scroll—elastic webs and cords. Faire Brothers & Co., Limited, 2 Southampton street and St. George's Mills, Leicester.

381,453. The words GOLDFLAKE RUBBER—dental rubber. The Vulcan Dental Manufacturing Co., Limited, 9A, The Village, Old Charlton, London, S.E. 7.

381,725. Representation of a man kneeling beside an oval—garters. A. Stein & Co., 1149 West Congress street, Chicago, Illinois, U. S. A.

381,741. The word ORLDRI—ladies' and children's raincoats. T. H. Rigby & Co., Limited, 1 George street, Manchester.

382,467. Representation of a vehicle wheel and automobile headlight, with the letters Y and S to the left and right of the wheel, respectively, and the letter B below the upright support of the headlight—rubber tires included in Class 40. Y. Sheriff, 144 Commercial street, Bangalore, India.

382,468. The words AERIAL KING—golf balls and tennis balls. M. C. C. Co., Limited, 73 Tavistock street, Bedford, Bedfordshire.

382,475. The word PALITE—sheeting and boot and shoe soles. The Leyland & Birmingham Rubber Co., Limited, Golden Hill Works, Leyland, Lancashire.

382,477. The word VI-ROK—material made of india rubber and fiber. Lilley & Skinner, Limited, 192-204 Pentenville Road, King's Cross, London, N.1.

382,811. The word MACNOVA—ladies' and gentlemen's waterproof coats. H. B. Rogers, 6 College Gardens, Tufnell Park, London, N.7.

382,883. The word MITRUCCO—goods manufactured from india rubber and gutta percha, not included in other classes. The Mitcham Rubber Co., Limited, 26 Duke street, Aldgate, London, E.C.3.

382,911. The words ORCHID BRAND—goods manufactured from india rubber and gutta percha, not included in other classes. Walker, Kimpson & Stevens, Limited, corner of Rutland and Queen streets, Leicester.

382,916. The Word MITRUCCO—unmedicated instruments, apparatus and contrivances for surgical or curative purposes, etc. The Mitcham Rubber Co., Limited, 26 Duke street, Aldgate, London, E.C.3.

NEW ZEALAND.

13,833. The words DUNLOP KRÖMHYD—goods made from india rubber or gutta percha not included in other classes than class 40. Dunlop Rubber Co. of Australasia, Limited, 108 Flinders street, Melbourne, Victoria, Australia.

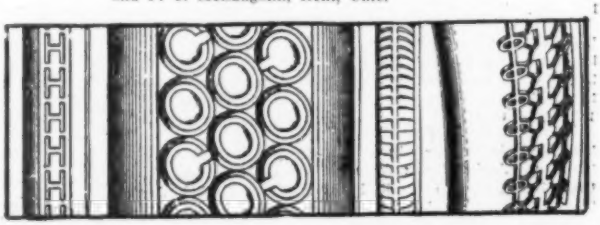
14,234. The word THERMOID in boldfaced fancy letters, with the cross on the T prolonged to join the top of the D—mechanical rubber goods. Thermoid Rubber Co., Whitehead's Road, Hamilton Township, Mercer County, New Jersey, U. S. A.

DESIGNS.

THE UNITED STATES.

NO. 52,054. Pneumatic tire. Term 14 years. Patented May 28, 1918. J. C. Cole, Springfield, Massachusetts, assignor to The Dreadnaught Tire & Rubber Co., Orangeville, Maryland.

52,055. Tire. Term 14 years. Patented May 28, 1918. F. M. Hale and F. C. McLaughlin, Kent, Ohio.



52,054. 52,055. 52,064. 52,067.

52,062. Automobile tire. Term 14 years. Patented May 28, 1918. J. B. McDevitt and M. Greenspan, Chicago, Illinois.

52,067. Tire. Term 14 years. Patented May 28, 1918. J. Tenney, Jr., Plainfield, New Jersey.

FOREIGN TRADE-MARK TROUBLES AND REMEDIES.

THE recent discovery of the means adopted by Germany and her allies in securing control of valuable American trade-marks in foreign countries that are parties to the Berne Trade-Mark Convention, urges the importance of thorough acquaintance with the scope and tenor of foreign trade-mark laws and treaties.

By the so-called Berne Trade-Mark Convention the countries belonging to the International Union for the Protection of Industrial Property agree that subjects or citizens of each of the contracting countries shall enjoy in all the other countries of the union advantages which the respective laws regarding patents, trade-marks, designs and models, grant or may in future grant, to the citizens of that country. The same rights are given to subjects of countries not belonging to the union, but who are domiciled or have *bona fide* industrial establishments in any of the countries of the union. The countries that are parties to this agreement are: Austria, Belgium, Brazil, Cuba, Spain, France, Hungary, Italy, Mexico, Holland, Portugal, Switzerland and Tunis.

Therefore, since the United States is not a member, an American manufacturer who wishes to have his trade-names or patents recognized in these countries, must register in every one of them, while an Austrian, for instance, has but to file his trade-marks in one country, to have them recognized in all thirteen. Consequently, where Americans have neglected to do this, any citizen of one of the above-named nations can register American trade-marks either for his own personal benefit or as agent for an outsider, to the exclusion of the true owner. And this is precisely what the Austrian, Richard Mittler, did in the capacity of agent for German firms.

The trade-mark laws ruling in South America also offer to the unscrupulous the opportunity to steal trade-marks. In some of these countries, Brazil, Chile and Argentina, for instance, he who is the first to register a trade-mark is recognized to be the owner of it, and there have been many who were not slow to take advantage of this law. In this connection, a further source of danger is present where a mark is registered in the name of the local agent of the American manufacturer or exporter. For in the event that the principal desires to make a change, the agent may avail himself of the power to prevent the importation of the trade-marked goods except when consigned to him or under such terms as he may dictate. The only safe course to follow, therefore, is to register trade-marks promptly in the name of the manufacturer in counties where any considerable business is carried on or anticipated.

It must be admitted that in recent years some of the South American countries have attempted to protect well-known trade-marks and trade names. Thus the President of Costa Rica ruled that no trade-mark well-known in his territory through sales of goods bearing the mark or by advertisements, should be registered except upon proof of ownership. The Argentine Federal Court has passed a law by which any trader may take legal proceedings against a party who registers a mark prejudicial to his interests, whether or not he is the owner of a similar mark.

Naturally, these and like measures are not sufficient.

In addition to the points made, it is useful to observe that in Venezuela, Chile and Colombia, a distinction is made between a manufacturer's mark (*marca de fabrica*) and a dealer's mark (*marca comercial*) and separate registration must be made in the two sections.

The classification of trade-marks in Argentina extends to 25 classes, and separate registration is required for each class, while in Cuba one mark may be registered for several articles, but for several marks or variations of the same mark, as many fees must be paid.

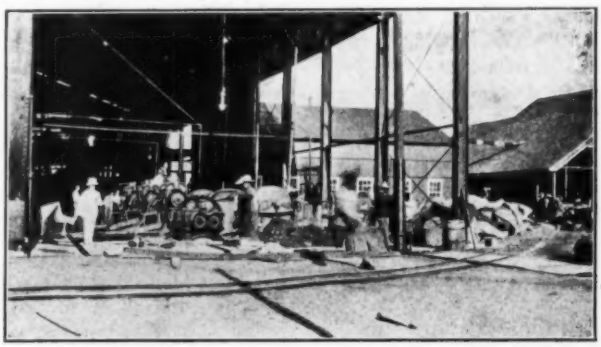
The term for which the registration of trade-marks is granted varies in the different countries. It is 10 years in Argentina, Chile, Guatemala, Nicaragua, Panama, Paraguay, Peru and Uruguay from 10 to 20 years in the Dominican Republic; 15 years in Brazil, Costa Rica, and Cuba; 20 years in Colombia, Ecuador, Mexico, and Salvador; 30 years in Venezuela; while in Bolivia and Honduras the term is indefinite. Registration is renewable in all cases.

A bill directing the Commissioner of Patents to recognize as valid the international registration of trade-marks by the Pan-American Bureau at Havana, has been approved by the Senate Commerce Committee, as a substitute for proposed amendment to the present trade-mark law, designed to carry out the convention signed in 1910 by all North American and South American countries.

When the necessary arrangements have been completed, the payment of a single fee of $50 will secure registration for a trade-mark in Costa Rica, Cuba, Dominican Republic, Guatemala, Honduras, Nicaragua, and Panama, and such others as may later be added, as well as in the countries of South America when a second bureau shall have been established at Rio de Janeiro, Brazil.

RUBBER GOODS FACTORY IN BORNEO.

It is of interest to note that the first concern to begin the manufacture of rubber goods in Borneo is the United Malaysian Rubber Co., Limited. Prior to the war this company was



P. Schridowitz.

A VIEW OF THE GOEBILT FACTORY.

engaged in the treatment of Pontianak or gutta jelutong, marketing the output of rubber as Malaysian crêpe and block and resin as an important by-product. The first of their extraction plants is located at Goebilt, in North Borneo (British), and the second at Sampit, in South Borneo (Dutch). A section of the Goebilt works is now being devoted to the manufacture of solid rubber tires for jinrikishas. The tires are sold in Singapore and Japan. It is proposed to develop the business further by the addition of other lines of suitable mechanical rubber goods. The compounding ingredients and other supplies are mostly shipped from the United States, but some come from Japan. The Malaysian company's Far Eastern operations are under the management of Frank Weiding, at Singapore.

NORWAY'S FIRST CABLE FACTORY.

According to a report from Consul H. E. Carlson, Christiania, a group of buildings, constituting the plant of the first Norwegian cable and rubber goods factory, has just been completed. It is expected that the factory will shortly be in a position to supply those articles formerly imported from abroad.

The buildings, which are situated in Ostre Akre, a suburb of Christiania, cover an area of 8,000 square meters, in addition to space allotted to structures for electrical transformers, scales, etc. The cost of construction alone was $187,600, and together with machinery, the total cost amounted to $402,600.

Review of the Crude Rubber Market.

Copyright, 1918.

NEW YORK.

THE rubber market has been practically dead during the greater part of the last month. Meanwhile the trade has marked time, waiting for the expiration of the three months' restriction period on July 31, and for the announcement from Washington of the regulations governing the future.

Very few certificates appeared, indicating that manufacturers' allocations had been covered. Standard plantation grades for future shipment were quoted as low as 42 cents, New York. A few small lots of free rubber were sold by importers against similar quantities to be shipped against allocation certificates from stocks bought in the Far East prior to May 8, and for which there appears to be no marketing provision made in government regulations.

This question was brought to the attention of the War Trade Board at Washington by a special committee representing the crude rubber importers, comprising Edward Maurer, W. T. Baird, Paul Schaffer, A. G. McDonough and a representative of W. R. Grace & Co.

The War Service Committee of the Rubber Industry of the U. S. A. was in conference last month at Washington with the War Trade Board concerning the governmental regulations of crude rubber and rubber products for the future. It is believed, however, that the existing crude rubber regulations will be continued for the next three months with certain modifications governing points heretofore uncovered, but whatever is done will be accepted by the whole trade in support of the Government's policy of conservation and elimination of unnecessary rubber products.

SINGAPORE.

American restriction has had a depressing effect on this market. With accumulating stocks and prices abnormally low, producers have urged the British Government for relief measures. The only immediate relief is the adjustment of production on the basis of 100,000 tons, America's restricted supply for the year.

STATISTICS.—The London and Liverpool imports for May were 2,656,600 pounds, value £325,657, compared with 11,500,300 pounds, value £1,367,299 for April. Reexports for May were 7,825,900 pounds, value £973,877, compared with 2,699,100 pounds, value £323,101 for April.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations one year ago, one month ago, and July 27, the last two being government prices for occasional small lots of free rubber.

	August 1, 1917.	Free Rubber. July 1, 1918.	Free Rubber. July 27, 1918.
PLANTATION HEVEA—			
First latex crêpe, *Hevea first crêpe	67 @	63 @	63 @
Amber crêpe No. 1	65 @	60 @	60 @
Amber crêpe No. 2	64 @	60 @	60 @
Amber crêpe No. 3	63 @	58 @	58 @
Amber crêpe No. 4	62 @	57 @	57 @
Brown crêpe, thick clean	62 @	60 @	60 @
Brown crêpe, thin clean	61 @	60 @	60 @
Brown crêpe, thin specky	59 @	50 @	50 @
Brown crêpe, rolled	48 @	44 @	44 @
Smoked sheet, ribbed standard quality, *Hevea ribbed smoked sheets	67 @	62 @	62 @
Smoked sheet, plain standard quality, *Hevea plain or smooth smoked sheets	64 @64½	61 @	61 @
Unsmoked sheet, standard quality, *Hevea unsmoked sheets	62 @62½	60 @	60 @
Colombo scrap, No. 1	49 @49½	46 @	46 @
Colombo scrap, No. 2	45 @45½	44 @	44 @

	August 1, 1917.	Free Rubber. July 1, 1918.	Free Rubber. July 27, 1918.
BRAZILIAN PARAS—			
Upriver fine	68½@69	68 @	68 @
Upriver medium	63 @	63 @	63 @
Upriver coarse	48½@	40 @	40 @
Upriver weak fine	59 @	56 @	56 @
Upper caucho ball	42½@	40 @	40 @
Islands fine	61 @	59 @	59 @
Islands medium	58 @	@	@
Islands coarse	30 @	27 @	27 @
Cametá	32½@	28 @	28 @
Lower caucho ball	39 @40	36 @	36 @
Peruvian fine	66 @	67 @	@
Tapajos fine	66 @		
AFRICANS—			
Accra flake, prime	31 @	28 @	28 @
Niger flake, prime	31 @	28 @	28 @
Benguela, extra No. 1, 28%	39 @	33 @	33 @
Benguela, No. 2, 32½%	37½@	29 @	29 @
Congo prime, black upper	56 @	50 @	50 @
Congo prime, red upper	53 @	48 @	48 @
Rio Nunez ball	64 @66	55 @	55 @
Rio Nunez sheets and strings	64 @66	@	@
Conakry niggers	64 @	@	@
Massai sheets and strings	64 @	55 @	55 @
CENTRALS—			
Castilloa block	@	@	@
Corinto scrap	43 @	@	@
Esmeralda sausage	43 @	39 @	39 @
Central scrap	42 @43	39 @	39 @
Central scrap and strip	41 @42	@	@
Central wet sheet	31 @	@	@
Guayule, 20% guaranteę	36 @	35 @	35 @
Guayule, dry	47 @	48 @	48 @
MANICOBAS—			
Ceara negro heads	44 @	40 @	38 @
Ceara scrap	27 @28	34 @	37 @
Manicoba special	45 @	42 @	42 @
Manicoba extra	42½@	38 @	38 @
Manicoba regular	37½@	34 @	34 @
Mangabeira thin sheet	39 @	40 @	40 @
Mangabeira thick sheet	35 @36	32 @	35 @
EAST INDIAN—			
Assam crêpe	63 @	@	60 @
Assam onions	61 @	@	54 @
Penang block scrap	41 @	@	@
Borneo, No. 2	@	@	@
No. 3	@	@	@
BALATA—			
Block, Ciudad Bolivar	64 @	71 @	71 @
Colombia	60 @	61 @	61 @
Panama	58 @	50 @	50 @
Surinam sheet	92 @	95 @	95 @
amber	85 @	97 @	97 @
PONTIANAK—			
Banjermassin	11 @	15 @	15 @
Pressed block	18 @	25 @	25 @
GUTTA PERCHA—			
Gutta Siak	19½@	23 @	23 @
Red Macassar	2.30@	3.00@	3.00@

*Rubber Association of America nomenclature.

RECLAIMED RUBBER.

During the past month the market for reclaimed rubber has been featureless, with business confined to routine sales that are normally small at this season of the year. Prices have not changed materially.

When the Government's policy of conservation of raw materials shall have included the investigation of reclaimed rubber, it will appear that reliable rubber goods and cheaper can be furnished the Government by the use of reclaimed rubber, thus broadening the market for this well-known material.

NEW YORK QUOTATIONS.

JULY 25, 1918.

Subject to change without notice.

Corona No. 30 black	lb.	.19	@	
white	lb.	.21	@	
No. 312 hydro-carbon	ton	50.00	@	
325 hydro-carbon	ton	65.00	@	
Standard shoe reclaim	lb.	.15	@	.15½
tire reclaim	lb.	.18	@	.18½
motor truck reclaim	lb.	.12½	@	.13

COMPARATIVE HIGH AND LOW SPOT RUBBER PRICES.

Plantation:	July. 1918.	1917.	1916.
First latex crêpe	$0.60@0.63	$0.65@0.68½	$0.56 @0.60½
Smoked sheet ribbed	.62@ .62	.65@ .68½	.55½@ .59½
Paras:			
Upriver, fine	.68@ .68	.69@ .76	.62 @ .68
Upriver, coarse	.40@ .40	.48@ .54	.42 @ .50
Islands, fine	.59@ .59	.68@ .73	.57 @ .62
Islands, coarse	.27@ .27	.29@ .34	.27 @ .31
Cametá	.28@ .28	.33@ .37	.33 @ .35

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers, broker in crude rubber and commercial paper, No. 68 William street, New York, advises as follows:

The demand for commercial paper during July has been rather light, as for the past three months, and the volume of rubber paper has also been small, the best names being quoted at 6 to 6½ per cent, and those not so well known 6¾ to 7 per cent.

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [May 30, 1918]:

The weekly rubber auction which commenced yesterday disclosed a somewhat weak market, and, although the top prices are not much below those paid last week, only the very best of the lots on offer were taken at or near these prices, lots which were a little off in quality being neglected. The highest paid for both fine pale crêpe and ribbed smoked sheet was $94 per picul, which shows a reduction of $1 in crêpe and $3 in sheet. Clean brown crêpes were in good demand at a little below last week's prices, but dark and barky crêpes were a very poor market. On the second day of the sale the weakness was, if anything, more pronounced, the highest paid for fine pale crêpe being $91 and for ribbed smoked sheet $93 per picul. The total quantity cataloged was 945 tons, of which 381 tons changed hands.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked	$88@ 94	1/11 @2/ 0¼	37.40@39.95
Sheet, good ribbed smoked	71@ 87	1/ 7⅜@1/10¾	30.18@36.98
Sheet, plain smoked	65@ 68	1/ 6⅛@1/ 6¾	27.63@28.90
Sheet, ribbed unsmoked	@	@	@
Sheet, plain unsmoked	@	@	@
Crêpe, fine pale	91@ 94	1/11⅝@2/ 0¼	38.68@39.95
Crêpe, good pale	74@ 90	1/ 8 @1/11⅜	31.45@38.25
Crêpe, fine brown	64@ 74	1/ 6 @1/ 8	27.20@31.45
Crêpe, good brown	50@ 64	1/ 3 @1/ 6	21.25@27.20
Crêpe, dark	37@ 46	1/ 0¼@1/ 2¼	15.73@19.55
Crêpe, bark	24@ 38	/ 9½@1/ 0¼	10.20@16.15
Scrap, virgin and pressed	26@ 33	/10 @ /11½	11.05@14.03
Scrap, loose	22@	/ 9⅛@	9.35@

*Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents.]

PLANTATION RUBBER EXPORTS FROM JAVA.

To—	April. 1917.	1918.	Four Months Ended April. 1917.	1918.
England	831,600	.....	2,164,800	3,649,800
United States	1,898,600	158,400	10,683,200	4,690,400
Singapore	224,400	2,915,000	1,229,800	3,744,400
Japan	}	33,000	{	556,600
Other countries	} 4,400	.....	{ 15,400	.....
Totals	2,959,000	3,106,400	14,093,200	12,641,200
From—				
Batavia	1,447,600	1,619,200	7,726,400	6,784,800
Samarang	33,000	19,800	176,000	136,400
Soerabaia	1,476,200	1,467,400	5,827,800	5,720,000
Other ports	2,200	.....	363,000	.....
Totals	2,959,000	3,106,400	14,093,200	12,641,200

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the records.

[The Figures Indicate Weight in Pounds.]

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
PARAS.						
MAY 10.—By the *Curvello*=Para.						
Meyer & Brown	41,500	.....	300	35,200	.....	= 77,000
MAY 15.—By the *Sergipe*=Manaos and Iquitos.						
Meyer & Brown	213,200	.....	600	85,700	.....	=299,500
MAY 24.—By the *Geo. S. Smith*=Para.						
Meyer & Brown	.....	.....	41,600	52,300	.....	= 93,900
JUNE 4.—By the *Albert H. Wills*=Para.						
Meyer & Brown	36,100	.....	54,200	120,900	.....	=205,200
JULY 19.—By the *Uberaba*=Para and Manaos.						
H. A. Astlett & Co	190,400	121,000	58,200	28,000	31,900	=429,500
Meyer & Brown	254,200[1]	.....	184,800	470,400	.....	=909,400
Pell & Dumont	.....	.....	.....	61,498	.....	= 61,498
NO DATE GIVEN.						
By the *Sam Hathaway*=Para.						
Pell & Dumont	.....	.....	22,293	26,460	.....	= 48,753

[1]Including medium.

ARRIVALS AT THE PORT OF NEW YORK.

PLANTATIONS.

TO NEW YORK.

	Pounds.
JULY 8.—By the *Ceylon*=Colombo:	
General Rubber Co	101,600
Fred. Stern & Co	67,200
Rubber Trading Co	33,600
OVERLAND FROM FAR EAST.	
MAY 24-JUNE 24.	
Fred. Stern & Co	2,553,600
JUNE 20-JULY 23.	
Hagemeyer Trading Co	152,780
Rubber Trading Co	136,640
JULY 5.—Ex *Matsura Maru:*	
J. T. Johnstone & Co	46,966
JULY 8.—Ex *Venezuela:*	
J. T. Johnstone & Co	41,394
JULY 8 and 18.—Ex *Princes Juliana:*	
J. T. Johnstone & Co	55,119
JULY 8.—Ex *Tjisondari:*	
J. T. Johnstone & Co	55,756
JULY 10.—Ex *Koningin der Nederlanden:*	
J. T. Johnstone & Co	.40,555
JULY 11.—Ex *Kosoku Maru:*	
J. T. Johnstone & Co	111,985
JULY 11.—Ex *Shinyo Maru:*	
J. T. Johnstone & Co	13,913
JULY 16.—Ex *Monteagle:*	
J. T. Johnstone & Co	82,981

AFRICANS.

JUNE 3.—By the *Toronto*=London:
Meyer & Brown 44,500

GUAYULE.

JULY 16.—By the *Almirante No. 12*=Eagle Pass, Texas:
Contirental Mexican Rubber Co 59,400

JULY 13.—By rail to Akron=Eagle Pass, Texas:
Continental Mexican Rubber Co 75,110

BALATA.

JULY 19.—By the *Uberaba*=Para:
Pell & Dumont 7,434

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

PLANTATIONS.

	Pounds.
MAY 10.—By the *Roepat*=Singapore:	
Meyer & Brown	110,500
MAY 11.—By the *Matsura Maru*=Singapore:	
Meyer & Brown	256,500
MAY 25.—By the *Hanna Nielsen*=Singapore:	
Meyer & Brown	114,400
MAY 30.—By the *Protesilaus*=Singapore:	
Meyer & Brown	11,200
JUNE 3.—By the *Celebes Maru*=Singapore:	
Meyer & Brown	74,000
JUNE 7.—By the *Kiku Maru*=Singapore:	
Meyer & Brown	160,000
JUNE 17.—By the *Monteagle*=Singapore:	
General Rubber Co	380,800
Fred. Stern & Co	35,840
Hagemeyer Trading Co	224,039
JUNE 24.—By the *Key West*=Singapore:	
General Rubber Co	224,000
JUNE 28.—By the *Meikai Maru*=Singapore:	
General Rubber Co	143,300
Meyer & Brown	33,600
JUNE 28.—By the *Atagosan Maru*=Singapore:	
Meyer & Brown	145,600
Hagemeyer Trading Co	64,960
Fred. Stern & Co	268,800
JUNE 30.—By the *Yeifuku Maru*=Singapore:	
General Rubber Co	1,646,400
Fred. Stern & Co	33,600
JULY 2.—By the *Tyndareus*=Singapore:	
General Rubber Co	224,000
Fred. Stern & Co	44,800
JULY 5.—By the *Santa Cruz*=Colombo:	
General Rubber Co	112,000
JULY 9.—By the *Nias*=Batavia:	
General Rubber Co	175,100
Fred. Stern & Co	112,000
JULY 10.—By the *Liberia Maru*=Singapore:	
General Rubber Co	224,000
Fred. Stern & Co	44,800
JULY 18.—By the *Shinkoku Maru*=Singapore:	
General Rubber Co	1,008,000
Meyer & Brown	121,000
Fred. Stern & Co	201,600

NO DATES GIVEN.

	Pounds.
By the *Alps Maru:*	
Fred Stern & Co	11,200
By the *Ecuador:*	
Fred. Stern & Co	40,320
By the *Swiva Maru:*	
Fred. Stern & Co	67,200
By the *Kamo Maru:*	
Fred. Stern & Co	44,800

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.[1]

SEATTLE AND TACOMA.

PLANTATIONS.

[Figured 135 pounds net to the case.]

TO AKRON, OHIO.

		Pounds.
JUNE 28.—By the *Meikai Maru*=Singapore:		
Firestone Tire & Rubber Co..	406,350	
Goodyear Tire & Rubber Co..	1,605,285	
Swinehart Tire & Rubber Co..	32,400	2,044,035
JUNE 28.—By the *Atagosan Maru*=Singapore:		
Firestone Tire & Rubber Co..	324,810	
Goodyear Tire & Rubber Co..	562,950	887,760
JUNE 29.—By the *Tyndareus*=Yokohama:		
Firestone Tire & Rubber Co..	232,065	
Goodyear Tire & Rubber Co...	360,855	
The Rubber Association of America, Inc.	41,850	634,770
JULY 1.—By the *Yeifuku Maru*=Singapore:		
Firestone Tire & Rubber Co...	349,785	
Goodyear Tire & Rubber Co...	8,100	357,885
JULY 18.—By the *Shinkoku Maru*=Singapore:		
Firestone Tire & Rubber Co....	258,660	
Swinehart Tire & Rubber Co...	37,395	
Various	62,370	358,425

[1]Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repititions may, therefore, occur.

TO NEW YORK.

		Pounds.
JUNE 21.—By the *Kamo Maru*=Yokohama:		
General Rubber Co.	222,075	
Fred. Stern & Co.	24,435	
Robinson & Co.	7,560	254,070
Shortshipped ex *Ceylon Maru:*		
General Rubber Co.		122,715
[2]JUNE 28.—By the *Meikai Maru*=Singapore:		
Aldens' Successors, Limited	27,000	
Charles T. Wilson Co., Inc.	5,670	
Whittall & Co.	17,145	
William H. Stiles	88,290	
Mexican Crude Rubber Co.	15,795	
L. Littlejohn & Co.	22,140	
Robinson & Co.	95,985	
J. W. Phyfe & Co.	105,030	
General Rubber Co.	139,860	
Edward Maurer Co., Inc.	116,910	
American Foreign Banking Corp.	72,360	
J. T. Johnstone & Co.	39,825	
Fred. Stern & Co.	8,100	
Van Siclen & Co.	28,350	
Meyer & Brown	25,920	808,380
JUNE 28.—By the *Atagosan Maru*=Singapore:		
Aldens' Successors, Limited	20,925	
Edward Maurer Co., Inc.	30,375	
Robert Badenhop & Co.	61,560	
Poel & Kelly	71,280	
Robinson & Co.	22,275	
Fred. Stern & Co.	8,100	
W. R. Grace & Co.	8,100	
William H. Stiles	40,230	
Meyer & Brown	87,615	
Rubber Trading Co.	22,680	
L. Littlejohn & Co.	43,200	416,340
JUNE 29.—By the *Tyndareus*=Yokohama:		
Aldens' Successors, Limited	32,670	
The Rubber Association of America, Inc.	79,380	
Fred Stern & Co.	4,050	
W. R. Grace & Co.	2,025	
Robinson & Co.	29,430	
Edward Maurer Co., Inc.	7,425	
Poel & Kelly	132,300	
General Rubber Co.	164,025	
Various	179,010	630,315
JULY 1.—By the *Yeifuku Maru*=Singapore:		
Aldens' Successors, Limited	14,040	
Dodwell & Co., Limited	36,315	
William H. Stiles	5,400	
L. Littlejohn & Co.	17,280	
Charles T. Wilson & Co., Inc.	44,550	
Robert Badenhop & Co.	30,915	
United States Rubber Co.	1,202,715	
Robinson & Co.	6,750	1,357,965
[2]JULY 11.—By the *Kureha Maru*=Kobe:		
William H. Stiles	7,830	
L. Littlejohn & Co.	8,235	16,065
JULY 13.—By the *Arabia Maru*=Yokohama:		
Aldens' Successors, Limited	34,020	
Poel & Kelly	351,135	
Robinson & Co.	7,830	
William H. Stiles	10,800	403,785

[2]Arrived at Tacoma.
[3]360 cases shortshipped.

TO SEATTLE.

JUNE 21.—By the *Kamo Maru*=Yokohama:		
Aldens' Successors, Limited	50,625	
Mitsui & Co., Limited	50,355	
J. T. Johnstone & Co.	29,565	130,545
JUNE 28.—By the *Oridono Maru*=Singapore:		
Mitsui & Co., Limited	243,810	
The B. F. Goodrich Co.	1,244,160	1,487,970
JUNE 28.—By the *Meikai Maru*=Singapore:		
Aldens' Successors, Limited	458,460	
W. R. Grace & Co.	41,175	
Poel & Kelly	62,910	
Fred. Stern & Co.	32,940	
Goodyear Tire & Rubber Co.	30,780	
J. T. Johnstone & Co.	306,585	
L. Littlejohn & Co.	182,115	
Robinson & Co.	81,675	
Peninsular Trading Agency	186,570	
Mitsui & Co., Limited	89,910	1,473,120
JUNE 28.—By the *Atagosan Maru*=Singapore:		
Raw Products Co.	44,415	
W. R. Grace & Co.	23,355	
Goodyear Tire & Rubber Co.	219,780	
Fred. Stern & Co.	115,020	
L. Littlejohn & Co.	236,790	
Poel & Kelly	33,075	
Aldens' Successors, Limited	279,450	
J. T. Johnstone & Co.	32,400	
Charles T. Wilson Co., Inc.	50,625	
Mitsui & Co., Limited	300,240	1,335,150
JUNE 29.—By the *Tyndareus*=Yokohama:		
J. T. Johnstone & Co.	358,560	
Goodyear Tire & Rubber Co.	59,535	
Aldens' Successors, Limited	258,660	
L. Littlejohn & Co.	40,635	
Edward Maurer Co., Inc.	41,850	
Poel & Kelly	40,095	
The B. F. Goodrich Co.	143,640	
Balfour, Guthrie & Co.	47,790	
Various	112,860	1,103,625
JULY 1.—By the *Yeifuku Maru*=Singapore:		
Aldens' Successors, Limited	243,135	Pounds.
Edward Maurer Co., Inc.	22,680	
Smith & Schipper	54,000	
L. Littlejohn & Co.	168,345	
Robinson & Co.	9,450	
Fred. Stern & Co.	16,200	
Goodyear Tire & Rubber Co.	68,040	581,850
[2]JULY 11.—By the *Kureha Maru*=Kobe:		
Aldens' Successors, Limited	64,935	
L. Littlejohn & Co.	3,645	
Poel & Kelly	21,600	
Fred. Stern & Co.	13,635	
Goodyear Tire & Rubber Co.	9,315	113,130
JULY 13.—By the *Arabia Maru*=Yokohama:		
Mitsui & Co., Limited	98,550	
Edward Maurer Co., Inc.	48,465	
J. T. Johnstone & Co.	94,365	
Poel & Kelly	32,265	
The B. F. Goodrich Co.	37,800	311,445
JULY 15.—By the *Tofuku Maru*=Kobe:		
Winter, Son & Co.		271,215

TO WATERTOWN, MASS.

JULY 1.—By the *Yeifuku Maru*=Singapore:		
Hood Rubber Co.		47,385

TO GUELPH, ONTARIO.

JULY 1.—By the *Yeifuku Maru*=Singapore:		
F. E. Partridge Rubber Co.		23,760

TO MONTREAL, QUEBEC.

JULY 1.—By the *Yeifuku Maru*=Singapore:		
Canadian Consolidated Rubber Co., Limited		427,410

TO PETERBORO, ONTARIO.

JULY 1.—By the *Yeifuku Maru*=Singapore:		
Canadian General Electric Co., Limited		1,890

TO TORONTO, ONTARIO.

JUNE 29.—By the *Tyndareus*=Yokohama:		
Various		32,400
JULY 1.—By the *Yeifuku Maru*=Singapore:		
Dunlop Tire & Rubber Goods Co., Limited	12,150	
Alex. McFearson & Co.	1,890	14,040
[2]JULY 11.—By the *Kureha Maru*=Kobe: Shortshipped ex *Kenkon Maru.*		
The Goodyear Tire & Rubber Co. of Canada, Limited	3,645	
Oak Tire & Rubber Co., Limited	7,290	10,935
JULY 13.—By the *Arabia Maru*=Yokohama:		
Dunlop Tire & Rubber Goods Co., Limited		190,080

TO VANCOUVER, B. C.

JUNE 26.—By the *Taifuku Maru*=Kobe: Shortshipments.		
Various		4,050

[2]Arrived at Tacoma.

GUTTA.

TO SEATTLE, WASH.

JULY 1.—By the *Yeifuku Maru*=Singapore.		
Chemical National Bank of New York, Untreated gutta jelutong		298,500

TO NEW YORK.

JULY 1.—By the *Yeifuku Maru*=Singapore:		
L. Littlejohn & Co., gutta siak		106,500

SAN FRANCISCO.[1]

[*Figures 135 pounds net to the case.*]

		Pounds.
JUNE 20.—By the *Ecuador*=Singapore:		
Poel & Kelly	136,080	
H. O. Anderson	270	136,350
[2]JUNE 21.—By the *Willis*=Soerabaia:		
J. T. Johnstone & Co.	93,285	
Mitsui & Co., Limited	226,530	
Poel & Kelly	165,915	
Firestone Tire & Rubber Co.	91,260	
W. R. Grace & Co.	39,825	
Peninsular Trading Agency	12,285	629,100
JUNE 29.—By the *Rembrandt*=Batavia:		
Charles T. Wilson Co., Inc.	53,055	
W. R. Grace & Co.	67,500	
The Rubber Association of America, Inc.	155,520	
Poel & Kelly	38,610	
Goodyear Tire & Rubber Co.	82,755	
L. Littlejohn & Co.	26,325	
The B. F. Goodrich Co.	198,720	622,485
[3]JULY 30.—By the *Korea Maru*=Hongkong:		
F. R. Henderson & Co.	45,360	
L. Littlejohn & Co.	199,665	
Goodyear Tire & Rubber Co.	14,175	
The B. F. Goodrich Co.	245,700	
Aldens' Successors Limited	84,780	
Poel & Kelly	147,285	
W. R. Grace & Co.	3,105	
Curry McPhillips Co.	98,415	838,485
Shortshipped ex *Kiku Maru:*		
Goodyear Tire & Rubber Co.	8,640	
Fred. Stern & Co.	135	
William H. Stiles	2,970	
W. R. Grace & Co.	1,485	13,230
JULY 1.—By the *Bintang*=Soerbaia:		Pounds.
Edward Maurer Co., Inc.	74,115	
L. Littlejohn & Co.	47,250	
J. T. Johnstone & Co.	234,765	
The Rubber Association of America, Inc.	149,175	505,305
JULY 3.—By the *Santa Cruz*=Calcutta:		
United States Rubber Co.	108,000	
Poel & Kelly	174,285	282,285
[4]JULY 6.—By the *Nias*=Batavia:		
Firestone Tire & Rubber Co.	119,340	
The Rubber Association of America, Inc.	156,735	
Fred. Stern & Co.	159,435	
Poel & Kelly	50,625	
Arnold & Zeiss	17,550	
Writer, Son & Co.	60,750	
Goodyear Tire & Rubber Co.	945	
General Rubber Co.	131,355	
J. T. Johnstone & Co.	45,495	
L. Littlejohn & Co.	6,075	748,305
Shortshipped ex *Princes Juliana:*		
Poel & Kelly	540	
The Rubber Association of America, Inc.	405	945
[5]JULY 6.—By the *Billiton*=Batavia:		
Mitsui & Co., Limited	70,065	
Poel & Kelly	174,150	
The Rubber Association of America, Inc.	285,660	
The B. F. Goodrich Co.	188,730	
W. R. Grace & Co.	33,885	
Firestone Tire & Rubber Co.	25,110	
Winter, Son & Co.	42,255	
Peninsular Trading Agency	15,525	
G. Amsinck & Co.	39,555	
Von Nordheim & Co.	64,260	939,195
Shortshipped ex *Tjisondari:*		
Rubber Association of America, Inc.		40,500
Shortshipped ex *Willis:*		
J. T. Johnstone & Co.	4,320	
Firestone Tire & Rubber Co.	8,235	12,555
Shortshipped ex *Princes Juliana:*		
J. T. Johnstone & Co.		8,100
[6]JULY 10.—By the *Siberia Maru*=Hongkong:		
F. R. Henderson & Co.	165,240	
L. Littlejohn & Co.	26,190	
Aldens' Successors, Limited	63,855	
Goodyear Tire & Rubber Co.	147,015	
Fred. Stern & Co.	15,660	
General Rubber Co.	159,975	
J. T. Johnstone & Co.	55,080	633,015
Shortshipped ex *Nippon Maru:*		
Edward Maurer Co., Inc.	675	
Goodyear Tire & Rubber Co.	270	
J. T. Johnstone & Co.	945	
Poel & Kelly	2,700	
The B. F. Goodrich Co.	2,565	
William H. Stiles	270	
Peninsular Trading Agency	540	
L. Littlejohn & Co.	405	8,370
JULY 15.—By the *Kawi*=Singapore:		
Charles T. Wilson & Co.	52,650	
Edward Maurer Co., Inc.	22,815	
Winter, Son & Co.	7,560	
McDonald & Co.	3,645	86,670
JULY 17.—By the *Colombia*=Hongkong:		
Edward Maurer Co., Inc.	48,195	
Robert Badenhop & Co.	23,355	71,550

[1]Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.
[2]97 cases shortshipped.
[3]1 Case shortshipped.
[4]602 cases shortshipped.
[5]71 cases shortshipped.
[6]1 case shortshipped.

GUTTA.

JUNE 21.—By the *Willis*=Soerabaia:		
British Bank of South America:		
Gutta percha		115,500

STATISTICS OF CRUDE AND MANUFACTURED RUBBER AT THE PORT OF NEW YORK.

IMPORTS. May, 1918.

MANUFACTURED—free:	Pounds.	Value.
Crude rubber:		
From—		
Portugal	128,770	$51,357
England	3,475,011	2,173,143
Costa Rica	3,354	926
Nicaragua	33,688	9,931
Panama	36,394	14,589
Salvador	3,377	1,087
Trinidad	40,827	26,658
Brazil	4,220,003	1,394,066
Colombia	213,851	96,406
Ecuador	21,828	7,264
Peru	592,565	236,179
Venezuela	82,736	38,469
China	9,533	3,933
British India	836,354	397,865

	May, 1918.	
	Pounds.	Value.
Straits Settlements	9,038,683	3,863,063
British East Indies	2,189,910	1,036,631
Dutch East Indies	3,502,852	1,630,124
Philippine Islands	9,374	4,315
Portugese Africa	7,822	3,807
Totals	24,446,932	$10,989,813
Gutta percha:		
From—		
Straits Settlements	78,400	$8,846
British West Africa	22,400	7,392
Totals	100,800	$16,238
Gutta jelutong:		
From—		
Straits Settlements	131,545	$11,605
Dutch East Indies	394,599	17,651
Totals	526,144	$29,256
Balata:		
From—		
Panama	63,184	$25,487
Trinidad	11,901	8,029
Colombia	40,667	17,072
British Guiana	12,650	10,120
Dutch Guiana	10,112	7,584
Venezuela	107,881	57,021
Totals	246,395	$125,313
Rubber scrap:		
From—		
France	33,468	$2,478
England	523,380	47,000
Canada	30,000	1,500
Panama	8,366	410
Newfoundland	2,340	135
Trinidad	6,543	361
Other British West Indies	456	22
Cuba	20,760	1,013
Totals	625,313	$52,919
Totals unmanufactured	25,945,584	$11,213,539
MANUFACTURED—*dutiable:*		
India rubber:		
From—		
France	.....	$204
England	.....	12,072
Canada	.....	300
Colombia	.....	2,900
Japan	.....	1,560
Total	.....	$17,036
India rubber, substitutes:		
From—		
Straits Settlements	.....	$3,322

EXPORTS OF DOMESTIC MERCHANDISE.

	May, 1918.	
MANUFACTURED—*free:*	Pounds.	Value.
Automobile tires:		
To—		
France	.....	$101,130
England	.....	54,623
Honduras	.....	4,416
Nicaragua	.....	596
Panama	.....	13,398
Mexico	.....	35,099
Trinidad	.....	10,992
Cuba	.....	111,423
San Domingo	.....	7,966
Argentina	.....	89,114
Bolivia	.....	2,334
Brazil	.....	80,886
Chile	.....	109,111
Colombia	.....	4,415
Ecuador	.....	10,576
Peru	.....	7,774
Uruguay	.....	6,687
Venezuela	.....	15,597
China	.....	5,407
British India	.....	9,249
Japan	.....	22,251
Australia	.....	46,664
British South Africa	.....	2,814
Other countries	.....	23,506
Total	.....	$776,028
All other tires	.....	$24,831
Scrap rubber	178	27
Belting	.....	212,323
Rubber boots ..... *pairs*	1,919	5,493
Rubber shoes ..... *pairs*	22,173	19,293
Druggists' sundries	.....	23,052
Other rubber manufactures	.....	243,473
Total	.....	$1,304,520

EXPORTS OF FOREIGN MERCHANDISE.

	May, 1918.	
UNMANUFACTURED—	Pounds.	Value.
India rubber	110,586	$56,332
Balata	40,477	24,788
Totals	151,063	$81,120

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	April, 1918.	
UNMANUFACTURED—*free:*	Pounds.	Value.
India rubber:		
From—		
United Kingdom	79,828	$30,568
Central America	42,584	14,257
Mexico	98,086	36,070
Brazil	4,284,554	1,334,825
Peru	3,933	1,917
Other South America	92,356	42,377
British East Indies	25,715,152	12,928,351
Dutch East Indies	2,487,727	1,321,758
Other countries	215,560	125,867
Totals	33,013,780	$15,835,990
Balata	304,674	$180,057
Gutta jelutong	624,018	43,430
Totals	33,942,472	$16,059,477
Rubber scrap	305,320	23,204
Totals unmanufactured	34,247,792	$16,082,681
Chicle ..... *dutiable*	984,958	$488,651
MANUFACTURED—*dutiable:*		
Manufactures of india rubber and gutta percha	.....	$99,895
India rubber substitutes	.....	16,507

EXPORTS OF DOMESTIC MERCHANDISE.

	April, 1918.	
MANUFACTURED—	Pounds.	Value.
Automobile tires:		
To—		
France	.....	$7,313
Canada	.....	156,873
Mexico	.....	76,044
Cuba	.....	92,078
Argentina	.....	45,933
Brazil	.....	78
British India	.....	9,369
Dutch East Indies	.....	30,805
Australia	.....	145,553
New Zealand	.....	108,917
Philippine Islands	.....	148,824
British South Africa	.....	1,282
Other countries	.....	285,714
Totals	.....	$1,108,783
All other tires	.....	$88,313
Scrap and old rubber	86,298	10,830
Reclaimed rubber	273,687	44,506
Belting, hose and packing	.....	376,312
Rubber boots ..... *pairs*	29,322	86,094
Rubber shoes ..... *pairs*	131,487	119,721
Druggists' sundries	.....	65,469
All other manufactures of india rubber	.....	593,833
Total, manufactured	.....	$2,493,861
Fountain pens ..... *number*	10,607	$170,640

EXPORTS OF FOREIGN MERCHANDISE.

	April, 1918.	
UNMANUFACTURED—	Pounds.	Value.
Balata	97,982	$60,010
Gutta jelutong	2,240	302
Gutta percha	118,254	26,443
India rubber	953,885	479,457
Totals	1,172,361	$566,212
MANUFACTURED—		
India rubber	.....	$4,772

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

	April, 1918	
MANUFACTURED—	Pounds.	Value.
To—		
Alaska:		
Belting, hose and packing	.....	$34,616
Boots and shoes ..... *pairs*	9,109	35,355
Other rubber goods	.....	4,346
Total	.....	$74,317
To—		
Hawaii:		
Belting, hose and packing	.....	$8,407
Automobile tires	.....	152,574
Other tires	.....	8,144
Other rubber goods	.....	21,258
Total	.....	$190,383
To—		
Philippine Islands:		
Belting, hose and packing	.....	$15,117
Boots and shoes ..... *pairs*	20,258	12,099
Tires	.....	173,871
Other rubber goods	.....	30,351
Total	.....	$231,438

	April, 1918.	
To—	Pounds.	Value.
Porto Rico:		
Belting, hose and packing	.....	$6,988
Automobile tires	.....	44,443
Other tires	.....	473
Other rubber goods	.....	8,120
Total	.....	$60,024

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	April, 1918.	
UNMANUFACTURED—	Pounds.	£.
Crude rubber	11,604,700	1,379,690
Waste and reclaimed rubber	3,300	93
Gutta percha	587,552	84,185
Totals	12,195,552	1,463,968
MANUFACTURED—		
Apparel, waterproofed	.....	9,006
Boots and shoes...*doz. pairs*	750	8,129
Automobile tires and tubes	.....	51,190
Motorcycle tires and tubes	.....	4,923
Cycle tires and tubes	.....	9,489
Tires not specified	.....	82
Total	.....	82,819

EXPORTS OF DOMESTIC MERCHANDISE.

	April, 1918.	
UNMANUFACTURED—	Pounds.	£.
Waste and reclaimed rubber	269,400	5,982
MANUFACTURED—		
Apparel, waterproofed	.....	38,290
Boots and shoes...*doz. pairs*	4,114	5,054
Insulated wire	.....	5,975
Automobile tires and tubes	.....	87,032
Motorcycle tires and tubes	.....	34,380
Cycle tires and tubes	.....	20,086
Tires not specified	.....	13,406
Other manufactures of india rubber	.....	106,868
Total	.....	317,073

EXPORTS—FOREIGN AND COLONIAL.

	April, 1918.	
UNMANUFACTURED—	Pounds.	£.
Crude rubber	2,792,100	332,676
Gutta percha	4,480	896
Totals	2,796,580	333,572
MANUFACTURED—		
Apparel, waterproofed	.....	4
Boots and shoes...*doz. pairs*	.....	86
Automobile tires and tubes	.....	5,923
Motorcycle tires and tubes	.....	26
Cycle tires and tubes	.....	669
Tires not specified	.....	647
Total	.....	7,355

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	May, 1918.	
UNMANUFACTURED—	Pounds.	£.
Crude rubber:		
At—		
London	1,931,300	235,995
Liverpool	725,300	89,662
Totals	2,656,600	325,657
Waste and reclaimed rubber:		
At—		
London	3,400	340

EXPORTS.

Waste and reclaimed rubber:		
From—		
London	649,200	10,664
Liverpool	123,400	2,732
Totals	772,600	13,396

REEXPORTS.

Crude rubber:		
From—		
London	6,343,400	799,863
Liverpool	1,482,500	174,014
Totals	7,825,900	973,877
Waste and reclaimed rubber:		
From—		
London	11,200	609

EXPORTS OF SOUTH AMERICAN RUBBER VIA PARA, DURING THE YEAR 1917.

From—	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
Para ..... *kilos*	5,850,031	543,884	4,163,075	3,512,791	14,069,781	4,454,122	206,224	238,768	805,551	5,704,665	19,774,446
Manaos	3,433,040	736,910	1,802,047	3,214,090	9,186,087	4,352,334	561,247	107,751	1,052,239	6,073,571	15,259,658
Iquitos	322,887	19,035	128,318	651,320	1,121,560	179,673	16,120	53,249	483,111	732,153	1,853,713
Itacoatiara	4,250	1,740	1,300	17,400	24,690	2,160	.....	1,300	2,720	6,180	30,870
Totals	9,610,208	1,301,569	6,094,740	7,395,601	24,402,118	8,988,289	783,591	401,068	2,343,621	12,516,569	36,918,687

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

Unmanufactured—*free:*	March, 1918. Pounds.	March, 1918. Value.	Fiscal Year Ended March, 1918. Pounds.	Fiscal Year Ended March, 1918. Value.
Rubber and gutta percha, crude caoutchouc or india rubber.	1,505,744	$759,488	13,095,645	$7,611,621
Rubber, recovered	532,711	86,642	4,487,772	722,701
Hard rubber, in sheets and rods	2,795	2,151	62,239	45,062
Rubber substitute	72,686	10,036	549,036	59,171
Rubber, powdered, and rubber or gutta percha waste.....	219,220	15,519	2,106,809	140,234
Rubber thread, not covered..	4,398	6,486	37,456	55,139
Balata, crude	.....	.....	4,036	3,217
Chicle	214,825	97,956	3,556,093	1,459,475
Manufactred—*dutiable:*	General Tariff. Value.	Preferential Tariff. Value.	General Tariff. Value.	Preferential Tariff. Value.
Boots and shoes.....	$6,177	$1,557	$264,954	$41,134
Belting	19,388	.....	135,940	7,588
Waterproof clothing	10,499	14,839	173,953	256,479
Hose, lined with rubber.....	6,768	.....	111,580	419
Mats and matting.....	5	.....	3,984	37
Packing	10,325	.....	94,870	1,080
Tires of rubber for all vehicles	209,761	3,857	2,030,484	21,958
Rubber cement and all manufactures of india rubber and gutta percha—n. o. p.....	75,954	[1]21,994	889,790	[2]182,367
Hard rubber, unfinished, in tubes, for fountain pens...	.....	.....	.....	9,265
Webbing, over one inch wide.	12,855	621	184,388	7,122

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

Manufactured—	March, 1918. Produce of Canada. Value.	March, 1918. Reexports of Foreign Goods. Value.	Fiscal Year Ended March, 1918. Produce of Canada. Value.	Fiscal Year Ended March, 1918. Reexports of Foreign Goods. Value.
Belting	.....	.....	$25,736	$689
Hose	$29,956	.....	159,288	570
Boots and shoes.....	44,840	$275	1,504,389	9,124
Clothing	263	4	6,833	1,042
Tires	41,557	1,605	859,712	47,545
Waste	3,189	.....	262,700	.....
All other—n. o. p.....	11,570	$61	92,847	2,856,885
Chicle	227,899	.....	1,816,673	555

[1] Includes $624 subject to treaty rates.
[2] Includes $10,755 subject to treaty rates.

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

BUSINESS has been extremely dull in rubber scrap during the entire month of July, and in fact, reports from certain quarters state that business has been at a standstill. While this is undoubtedly true, the fact that reclaimers have been in the market for small lots of certain necessary stocks, gives hope for better conditions in the future.

The rubber manufacturers for the greater part are occupied with governmental contracts in which reclaimed rubber forms a small part and until the virtues of this excellent compounding material are recgnized by the authorities there will be quantities of rubber scrap lying idle that should be utilized in the form of reclaim in making reliable rubber goods for the Government.

Boots and Shoes.—The mills were not at all interested in this material, even at liberal price concessions. It is reported that dealers' stocks are increasing, but on the part of large holders there has been no noticeable effort to sell; in fact, several have refused to deal. Prices are unchanged.

Inner Tubes.—These have been dull, sharply reflecting the crude rubber situation, although the undertone appears to be firmer than in the case of other scrap materials. Quotations remain the same.

Mechanicals.—The small demand for these grades was decidedly spotty and hardly worth recording, while prices have not changed.

Tires.—All grades of scrap tires have been dull and the market tone easy, however, prices have not changed appreciably. Jet black tires, according to the new classification, have not yet appeared on the market nor have they been quoted.

Statistics.—The London and Liverpool imports of waste and reclaimed rubber for May were 3,400 pounds, value £340, compared with 3,300 pounds, value £93, for April. Exports for May were 772,600 pounds, value £13,396, compared with 90,400 pounds, value £2,146 for April.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

July 25, 1918.

Prices subject to change without notice.

BOOTS AND SHOES.			
Arctic tops	*lb.*	$0.01½ @	.01¾
Boots and shoes	*lb.*	.08¼ @	.08¾
Trimmed arctics	*lb.*	.07 @	.07¼
Untrimmed arctics	*lb.*	.06 @	.06¼
HARD RUBBER.			
Battery jars, black compound	*lb.*	.02¼ @	
No. 1, bright fracture	*lb.*	.26 @	.27
INNER TUBES.			
No. 1, old packing	*lb.*	.22½ @	.23
new packing	*lb.*	.24½ @	.25
No. 2	*lb.*	.11¾ @	
Red	*lb.*	.11¾ @	
MECHANICALS.			
Black scrap, mixed, No. 1	*lb.*	.05½ @	
No. 2	*lb.*	.04 @	
Car springs	*lb.*	.05 @	
Heels	*lb.*	.04 @	
Horse-shoe pads	*lb.*	.04 @	
Hose, air-brake	*lb.*	.05¾ @	.05⅞
fire, cotton lined	*lb.*	.02½ @	
garden	*lb.*	.02½ @	
Insulated wire stripping, free from fiber	*lb.*	.04 @	
Matting	*lb.*	.01½ @	
Packing	*lb.*	.01½ @	
Red scrap, No. 1	*lb.*	.09½ @	.10
No. 2	*lb.*	.07 @	.07½
White scrap, No. 1	*lb.*	.12 @	.12¼
No. 2	*lb.*	.09 @	
TIRES.			
Pneumatic—			
Auto peelings, No. 1	*lb.*	.10 @	
No. 2	*lb.*	.07¼ @	.07½
Bicycle	*lb.*	.04⅞ @	
Standard white auto	*lb.*	.05½ @	
Standard mixed auto	*lb.*	.05 @	.05¼
Stripped, unguaranteed	*lb.*	.04½ @	
White, G. & G.	*lb.*	.05¾ @	
M. & W. and U. S.	*lb.*	.05⅞ @	
Solid—			
Carriage	*lb.*	.05¾ @	
Irony	*lb.*	.02 @	
Truck	*lb.*	.06¼ @	

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

JULY has been a generally quiet month in the base metal markets, but the undertone was strong. The maximum price of 26 cents for copper has been fixed by the Government, effective until August 15. Tin has been quiet, with an upward tendency. Later in the month it was announced that licenses for the shipment of tin from Singapore or Penang must be obtained from the Government of the Federated Malay States. Lead has been scarce and strong at prices agreed upon by the producers. Spelter remains inactive, but firm. Antimony has been quiet and unchanged and aluminum is ruled by the maximum prices fixed by the Government as follows: No. 1 virgin metal, 98 to 99 per cent pure, and scrap metal at 33 cents per lb. for 50-ton lots, at 33.10 cents per lb. for 15- to 50-ton lots and at 33.20 cents per pound for 1- to 15-ton lots.

The demand for rubber chemicals and ingredients has been seasonably quiet last month; however, certain materials have had a fair call, due to scarcity of supplies. The general market indications for good fall business are encouraging.

ACIDS.—Sulphuric and nitric acid prices have been fixed by the Government for the period from July 1 to October 1, as follows: Sulphuric acid, 60 degrees Baumé, $18 per ton of 2,000 lbs.; 66 degrees Baumé, $28 per ton of 2,000 lbs.; 20 per cent oleum, $32 per ton of 2,000 lbs. f. o. b. at manufacturers' works in sellers' tank cars. Shipment in carboys, carload lots, at ½-cent per pound; in, carboys, L. C. L., add ¾ cent per pound; in drums, any quantity, add ¼ cent per pound.

Nitric acid, 42 degrees Baumé, 8½ cents per pound, f. o. b. manufacturers works, in carboys.

Other strengths of nitric acid, based upon the above prices, are as follows:—

Nitric acid, 36 degrees Baumé, $0.0660 per lb.; 38 degrees Baumé, $0.0715 per lb.; 40 degrees Baumé, $0.7775 per lb., 42 degrees Baumé, $0.0850 per lb.; 43 degrees Baumé, $0.0890 per lb.

ANILINE OIL.—Stocks are said to be small and prices are very firm.

DRY COLORS.—Dealers report a fair volume of business for the quiet period now prevailing. The outlook is good and producers are anticipating more activity next month. Prices are unchanged and firm.

LITHARGE.—Requirements of the Government have caused a shortage in civilian trade and may result in an advance.

LITHOPONE.—The call has been greater than the supply, which is almost certain to result in higher prices.

TALC.—The demand has been good and the undertone firm. With the imported material out of the market, the production of domestic talc is hardly sufficient.

WHITING.—The demand is so good that large consumers are satisfied with enough material to supply their daily needs; prices are firm and unchanged.

ZINC OXIDE.—With insufficient supplies to meet existing requirements, the conclusion among consumers is, that prices for the new quarter of the year will be higher.

NEW YORK QUOTATIONS.

JULY 25, 1918.

Subject to change without notice.

ACCELERATORS, ORGANIC.				
Accelerator N. C. C.	lb.	.50	@	
Accelerene	lb.	*$2.62	@	
Accelemal	lb.	.80	@	
Accelemal No. 2	lb.	.80	@	
Accellerator No. 1	lb.	.60	@	
Aldehyde ammonia crystals	lb.	*1.15	@	1.25
Aniline oil	lb.	.26	@	.27½
Annex	lb.	.75	@	
Duplex	lb.	1.25	@	
Excellerex	lb.	.85	@	
Hexamethylenexamine (Vitalin)	lb.	.60	@	
Hexamethylene tetramine (powdered)	lb.	*1.15	@	1.25
Paraphenylenediamine	lb.	*3.00	@	
Tensilite	lb.	.75	@	
Thiocarbanilide	lb.	*.50	@	
Velocite	lb.	.65	@	
Vitaminex	lb.	.60	@	
ACCELERATORS, INORGANIC.				
Lead, dry red	lb.	.10¾	@	
sublimed blue	lb.	.08⅞	@	.09
sublimed white	lb.	.08⅞	@	.09
white, basic carbonate	lb.	.09½	@	.10
white, basic sulphate	lb.	.09	@	.09½
Lime, flour	lb.	.02	@	.02½
Litharge, domestic	lb.	.10¼	@	
English	lb.	.15	@	.16
sublimed	lb.	.10½	@	
Magnesium, carbonate	lb.	.12	@	.13
calcined, heavy	lb.	.08½	@	.12
light	lb.	.40	@	.50
Magnesium oxide	lb.	.06¾	@	
Magnesite, calcined, powdered	ton	65.00	@	
ACIDS.				
Acetic, 28 per cent (bbls.)	lb.	*.06	@	.09
Glacial, 99 per cent (carboys)	lb.	*.40	@	.42
Cresylic, 97-99 per cent, straw color	gal.	1.12	@	
95 per cent, dark	gal.	1.02	@	
Muriatic, 20 degrees	lb.	.02¼	@	.02½
Nitric, 36 degrees	cwt.	7.35	@	
Sulphuric, 66 degrees	cwt.	2.15	@	
ALKALIES.				
Caustic soda, 76 per cent, ground	lb.	.09	@	
Soda ash, light, 58 per cent in bags	lb.	.04½	@	
COLORS.				
Black:				
Bone, powdered	lb.	.05	@	
granulated	lb.	.09	@	
Carbon, black (cases, factory)	lb.	.15	@	.25
Ivory black	lb.	.16	@	.30
Lamp black	lb.	.15	@	.45
Oil soluble aniline	lb.	.75	@	1.50
Rubber black	lb.	.06	@	
Blue:				
Cobalt	lb.	.25	@	.35
Prussian	lb.	1.35	@	1.50
Ultramarine	lb.	.18	@	.50
Brown:				
Iron oxide	lb.	.03	@	.04
Ochre, domestic	lb.	.04	@	.07
imported	lb.	.09	@	
Sienna, raw and burnt	lb.	.07	@	.12
Umber, raw and burnt	lb.	.05	@	.08
Green:				
Chrome tile	lb.	*.15	@	
Oxide of chromium (casks)	lb.	*.85	@	
India rubber	lb.	.75	@	
Red:				
Antimony, crimson, sulphuret of (casks)	lb.	.50	@	
crimson, "Mephisto" (casks)	lb.	.55	@	
Antimony, golden, sulphuret of	lb.	.25	@	
golden, "Mephisto" (casks)	lb.	.28	@	
golden, sulphuret, States brand, 16-17%	lb.	.28	@	
red sulphuret, States brand	lb.	.25	@	
vermilion sulphuret	lb.	.55	@	
Arsenic, red sulphide	lb.	.45	@	
Indian, pure bright	lb.	.09	@	
Iron oxide, reduced grades	lb.	.10	@	
pure bright	lb.	.15	@	.17
Oil soluble aniline, red	lb.	2.50	@	3.00
orange	lb.	2.00	@	
Oxymony	lb.	.18	@	
Venetian	lb.	.02½	@	.06
Vermilion, English, pale, medium, dark	lb.	2.00	@	2.10
White:				
Lithopone, imported	lb.	*.07¾	@	.08
domestic	lb.	.07½	@	.08
Ponolith (carloads, factory)	lb.	.07½	@	.07¾
Rubber makers' white	lb.	.07½	@	.08
Zinc oxide, Horsehead (less carload, f. o. b. factory):				
"XX red"	lb.	.10½	@	
"Special"	lb.	.11	@	
French process, red seal	lb.	.13¼	@	
green seal	lb.	.13¾	@	
white seal	lb.	.14¼	@	
Zinc sulphide, pure	lb.	None		
Yellow:				
Cadmium, tri-sulphate	lb.	*2.68	@	
sulphide	lb.	*2.00	@	
Chrome, light and medium	lb.	.28	@	.32
India rubber	lb.	*1.00	@	
Ochre, light or dark	lb.	.02¼	@	
Oil soluble aniline	lb.	2.00	@	
Zinc chromate	lb.	.50	@	
COMPOUNDING INGREDIENTS.				
Aluminum flake (bbls. factory. Less 5% carload)	ton	27.00	@	
(sacks factory. Less 5% carloads)	ton	24.00	@	
Aluminum oxide	lb.	*.18	@	
Ammonia carbonate, powdered	lb.	.14	@	.14½
lumps	lb.	None		
Asbestine (bags)	ton	22.50	@	25.00
Asbestos (bags)	ton	25.00	@	35.00
Barium, carbonate, precipitated	ton	55.00	@	60.00
sulphide, precipitated	lb.	.07¼	@	.07½

Barytes, pure white	ton	35.00 @	
off color	ton	25.00 @	
uniform floated (f. o. b. factory)	ton	35.00 @	37.00
Basofor	ton	110.00 @	
Blanc fixe	lb.	.04¼ @	.04½
Bone ash	lb.	.06 @	
Chalk, precipitated, extra light	lb.	.05 @	.05¼
precipitated, heavy	lb.	.04 @	.04½
China clay, domestic	ton	15.00 @	22.00
Cotton linters, clean mill run, f. o. b. factory	bale	*4.67 @	
Fossil flour	ton	60.00 @	
Glue, high grade	lb.	.38 @	.50
medium	lb.	.25 @	.38
low grade	lb.	.15 @	.22
Graphite, flake (400 pound bbl.)	lb.	.10 @	.25
amorphous	lb.	.04 @	.08
Ground glass FF. (bbls.)	lb.	*.02¾ @	
Infusorial earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Mica, powdered	lb.	.03½ @	.06
Plaster of Paris	bbl.	2.00 @	3.00
Plastigum	lb.	.15 @	
Pumice stone, powdered (bbl.)	lb.	.03¼ @	.08
Rotten stone, powdered	lb.	.03½ @	
Rubber flux	lb.	.15 @	
Rubhide	lb.	*.38 @	
Silex (silica)	ton	20.00 @	36.00
Soapstone, powdered, domestic	ton	20.00 @	
imported	ton	None	
Starch, powdered corn (carload, bbls.)	cwt.	4.36 @	
(carload, bags 30 cts)	cwt.	4.05 @	
Talc, American	ton	15.00 @	
French	ton	*28.00 @	
Tripoli earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Tyre-lith	ton	85.00 @	100.00
Walpole rubber flux	lb.	.06 @	
Whiting, Alba (factory)	cwt.	.90 @	1.00
commercial	cwt.	1.25 @	1.30
gilders	cwt.	1.30 @	1.40
Paris, white, American	cwt.	1.50 @	1.75
English cliffstone	cwt.	1.75 @	2.00
Wood pulp XXX	ton	*40.00 @	45.00

MINERAL RUBBER.

Gilsonite	ton	55.00 @	
Genasco (carloads factory)	ton	55.00 @	
M. R.	ton	65.00 @	
M. R. X.	ton	100.00 @	
Liquid rubber	lb.	*.15 @	
Pioneer, carload, delivered	ton	*50.00 @	
less carload, factory	ton	*50.00 @	
Richmond Brand	ton	75.00 @	
No. 64 Brand	ton	65.00 @	
Refined Elaterite	ton	115.00 @	
Raven M. R.	ton	50.00 @	

OILS.

Corn, crude	lb.	.19 @	
refined Argo (carloads)	cwt.	20.72 @	
Glycerine (C. P. drums)	lb.	.65 @	.65¼
Glycerole	lb.	.12 @	
Linseed, raw (carloads)	gal.	1.82 @	
Palm	lb.	.18 @	
Paraffin	gal.	*.27 @	
Petrolatum	lb.	.07½ @	
Petroleum grease	lb.	.06 @	
Pine, steam distilled	gal.	*.55 @	
Pine tar	gal.	*.35 @	
Rapeseed, refined	gal.	1.80 @	
blown	lb.	.24½ @	
Rosin	gal.	.50 @	
Soya bean, crude	lb.	.19½ @	
Tar (cases)	gal.	.34 @	.36

SOLVENTS.

Acetone (drums)	lb.	.25½ @	.25¾
substitute (drums)	gal.	2.00 @	
Benzol, 90 per cent	gal.	.25 @	.30
Beta-naphthol, resublimed	lb.	1.05 @	
ordinary grade	lb.	.70 @	
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	*.25 @	
No. 1001 (f. o. b. Wyandotte)	lb.	*.32 @	
Naphtha, motor gasoline (steel bbls.)	gal.	.24½ @	
73 @ 76 degrees (steel bbls.)	gal.	None	
68 @ 70 degrees (steel bbls.)	gal.	None	
V. M. & P. (steel bbls.)	gal.	.23½ @	
Toluol, pure	gal.	1.50 @	1.55
Turpentine, spirits	gal.	.65 @	.66
wood	gal.	.57 @	
Venice	lb.	*.10 @	
Osmano reducer	gal.	.35 @	

SUBSTITUTES.

Black	lb.	.11 @	.18
White	lb.	.13 @	.25
Brown	lb.	.18 @	.24
Brown factice	lb.	.10 @	.23
White factice	lb.	.14 @	.24
Cordex	lb.	.45 @	
Energine	lb.	.30 @	
Paragol soft and medium (carloads)	cwt.	17.08 @	
hard	cwt.	16.58 @	
Toughenite	lb.	.40 @	

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.08 @	.10
tetrachloride (drum)	lb.	.25 @	.30
Lead, black hyposulphite (Black Hypo)	lb.	None	
Orange mineral, domestic	lb.	.13¾ @	
Sulphur chloride (drums)	lb.	.07½ @	.08
Sulphur, flour (carloads)	cwt.	3.90 @	
pure soft (carloads)	cwt.	3.95 @	

(See also Colors—Antimony)

RESINS AND PITCHES.

Cantella gum	lb.	.65 @	
Pine tar, retort	gal.	*.28 @	
kiln	gal.	*.25 @	
Pitch, Burgundy	lb.	*.07 @	
coal tar	lb.	*.01¼ @	
pine tar	lb.	*.02½ @	
ponto	lb.	*.12 @	
Resin, Pontianak, refined	lb.	None	
granulated	lb.	None	
fused	lb.	None	
Rosin, K	lb.	.04¼ @	
Shellac, fine orange	lb.	.78 @	.82
Tar, kiln	bbl.	13.00 @	

WAXES.

Wax, beeswax, white	lb.	.68½ @	.70
ceresin, white	lb.	.20 @	.23
carnauba	lb.	.70 @	.93
ozokerite, black	lb.	.60 @	
green	lb.	.78 @	.80
montan	lb.	*.40 @	
substitute	lb.	.23 @	.25
paraffin, crude 118/120 m. p. (cases)	lb.	.09½ @	.10
124/126 m. p. (cases)	lb.	.10 @	.11
refined 128/130 m. p. (cases)	lb.	.14 @	
135/137 m. p. (cases)	lb.	.15½ @	.15¾

*Nominal.

THE MARKET FOR COTTON AND OTHER FABRICS.

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NEW YORK.

THE general trend of the American cotton market was upward for the greater part of July, due to various unfavorable crop reports, and prices advanced, middling spot being quoted 33.15 cents on July 23. When favorable weather and crop reports were received, the market declined and middling spot was quoted 28.55 on July 27.

EGYPTIAN COTTON.—The cotton control commission established to supervise the purchase by the British and Egyptian Governments of the 1918-19 Egyptian cotton crop has fixed the types and type-marks upon which the purchase under its direction will be accomplished. The types established represent 23 types for Upper Egypt cotton, 29 for Sakellarides, 23 for Brown, and 8 for Afrita.

Steam-pressed samples weighing 5 pounds, it is announced, are ready for delivery upon payment of $4 (P. T. 80) per sample. Duplicates of the type samples have been sent to consuming countries for sale to interested parties. Hydraulic-pressed samples are in course of preparation and will be shortly on sale. These will form the basis for purchase by the commission from sellers in Egypt on and after August 1, 1918.

SEA ISLAND COTTON.—Trading in the southern markets has been very quiet and prices quoted are largely nominal. Crop conditions are very discouraging and a minimum product is expected.

DUCK, DRILLS AND SHEETINGS.—On July 9, the price-fixing committee of the War Industries Board arranged the following prices, effective until October 1: 36 inches 48 by 48 3-yard sheeting, 60 cents per pound; 36 inches 56 by 60 4-yard sheeting, 70 cents per pound; 38½ inches 65 by 60 5.35-yard print cloth, 83 cents per pound; 38½ inches 80 by 80 4-yard print cloth, 84 cents per pound; standard wide and sail duck, 37½ per cent and 5 per cent from list; standard Army duck, 33 per cent from list.

The differentials agreed upon July 25 to apply for the same period, are as follows: drills, from 69.29 cents to 57.46 cents a pound; uniform cloth, 60.90 cents a pound; four-leaf twills, 63.81 cents to 56.84 cents a pound; sheetings, 21⅜ cents to 11⅞ cents a yard; enameling duck, from 64 cents to 61 cents a pound; flit and twisted filling duck, from 59 cents to 54 cents a pound; three-leaf wide drills, from 64.59 cents to 60.4 cents a pound, and four-leaf wide twills, 62.94 cents a pound.

Mechanical Duck.—A price of 60 cents a pound for both hose and belting duck has been agreed upon by the price-fixing committee, on orders taken during July, August and September. These prices will probably rule after this period, as deliveries for the next three months are not to be had except in very small quantities.

Tire Fabrics.—The market for all grades has been quiet; however, the demands for delivery of goods already purchased have been pressing. While rumors of price-fixing in this market have disquieted some buyers, the belief is current that the committee will not regulate the longstaple fabrics.

NEW YORK QUOTATIONS.

July 25, 1918.

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:			
Wamsutta, S. A. I. L. No. 1, 40-inch	*yard*	*$0.60	@
No. 4, 38½-inch		*.50	@
for gas masks		*.45	@
ASBESTOS CLOTH:			
Brake lining, 2½ lbs. sq. yd., brass or copper insertion	*lb.*	.80	@
2¼ lbs. sq. yd., brass or copper insertion	*lb.*	.85	@
BURLAPS:			
32— 7½-ounce	*100 yards*		None
40— 7½-ounce		19.00	@
40— 8-ounce		19.25	@
40—10-ounce		24.50	@
40—10½-ounce		24.75	@
45— 7½-ounce			None
45— 8-ounce		22.00	@
45— 9½-ounce			None
48—10-ounce			None

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

DRILLS:			
38-inch 2.00-yard	*yard*	.31	@
40-inch 2.47-yard		.25½	@
52-inch 1.90-yard		*.46½	@
52-inch 1.95-yard		*.46¼	@
60-inch 1.52-yard		*.58	@
DUCK:			
CARRIAGE CLOTH:			
38-inch 2.00-yard enameling duck	*yard*	.31½	@
38-inch 1.74-yard		.35	@
72-inch 16.66-ounce		.64	@
72-inch 17-21-ounce		.69¼	@
MECHANICAL:			
Hose	*pound*	.60	@
Belting		.60	@
HOLLANDS, 40-INCH:			
Acme	*yard*	*.30	@
Endurance	*yard*	*.33½	@
Penn	*yard*	*.37	@
OSNABURGS:			
40-inch 2.35-yard	*yard*	.25¼	@
40-inch 2.48-yard		.24¼	@
37½-inch 2.42-yard		.24¾	@
RAINCOAT FABRICS:			
COTTON:			
Bombazine 64 x 60 water repellent	*yard*	*.23	@
60 x 48 not water repellent		*.20½	@
Cashmeres, cotton and wool, 36-inch		.65	@
Twills 64 x 72		.30	@ .32½
64 x 102		.35	@ .37½
Twill, mercerized, 36-inch, tan and olive		.34½	@
blue and black		.35½	@
Tweed		.45	@ .50
Tweed, printed		.22	@
Plaids 60 x 48		*.21½	@
56 x 44		*.20½	@
Repp		.25	@ .32
Surface prints 60 x 48		*.21½	@
64 x 60		*.23½	@
IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:			
63-inch, 3¼ to 7½ ounces	*yard*	1.00	@ 2.90
36-inch, 2¾ to 5 ounces		.75	@ 1.80
IMPORTED PLAID LINING (UNION AND COTTON):			
63-inch, 2 to 4 ounces	*yard*	.90	@ 1.60
36-inch, 2 to 4 ounces		.52½	@ 1.05
DOMESTIC WORSTED FABRICS:			
36-inch, 4½ to 8 ounces	*yard*	.65	@ 1.65
DOMESTIC WOVEN PLAIN LININGS (COTTON):			
36-inch, 3¾ to 5 ounces	*yard*	.20	@ .35
SHEETINGS:			
40-inch 2.35-yard	*yard*	*.28½	@
40-inch 2.50-yard		*.27½	@
40-inch 2.70-yard		*.24½	@
40-inch 2.85-yard		*.23	@
40-inch 3.15-yard		*.19½	@
JACKET:			
Delaware	*yard*	*.32½	@
Schuylkill	*yard*	*.35	@
SILKS:			
Canton, 38-inch	*yard*	.34½	@
Schappe, 36-inch		.52½	@
STOCKINETTES:			
COTTON, 52-INCH:			
D—14-ounce	*yard*	*.85	@ .90
E—11½-ounce		*.60	@ .65
F—14-ounce		*.85	@ .90
G— 8-ounce		*.75	@ .80
H—11-ounce		*.70	@ .85
I— 9-ounce		*.60	@ .65
Knitaback	*pound*	1.75	@ 2.00
WOOL, 52-INCH:			
A—14-ounce	*yard*	*1.75	@
B—14-ounce		*2.25	@
C—14-ounce		*2.50	@
TIRE FABRICS:			
17¼-ounce Sea Island, combed	*square yard*	1.70	@
17¼-ounce Egyptian, combed		1.35	@ 1.40
17¼-ounce Egyptian, carded		1.25	@ 1.30
17½-ounce Peelers, combed		1.10	@ 1.15
17¼-ounce Peelers, carded		1.00	@ 1.05

*Nominal.

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